The Builder

INCORPORATING ARCHITECTURE & THE BRITISH ARCHITECT

Vol. CCI. September 8th 1961 No. 6173

Published from 'The Builder' House, 4 Catherine-street, Aldwych, London, WC2. Telephones: Temple Bar 6251-4.

Annual subscription rate: £4. Special rate for Students following an approved architectural or technical course: 30s. Single copies (including back numbers, where available, up to 12 months old) 1s. 6d. (post paid 2s.). Indices free on application.

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Leading Articles

A Bouquet for CLASP

A BOUQUET for its success in providing better value for money in the design and erection of school buildings is handed to CLASP, the consortium of county councils organised by Nottinghamshire, by the Estimates Committee in its report for 1960-61, published by the Stationery Office. Wider publicity, as the Committee suggests, should be given to the Consortium which, by collaboration, has obtained the full value of bulk purchase and prefabrication in the revolutionary system of building devised by the Notts County Architect's Department and pioneered by that authority. The production claimed in Nottinghamshire of efficient schools in a building time of six months and 8 per cent cheaper than schools built in other ways elsewhere in England and Wales is an achievement that education authorities generally should be glad to know more about. In fact (as reported in 'The Builder' of August 25) the Notts example is to be followed by a further consortium comprising the county councils of Shropshire, Hampshire, Gloucestershire, West Sussex and Dorset.

Without detraction from the Nottinghamshire achievement, it yet is a matter for regret that the Estimates Committee in its report has not gone further and made mention of the very substantial contribution to cheaper building made by private enterprise. The CLASP achievement has been made at the expense of ratepayers' and Treasury funds in the initial period of research, whereas research by private developers has had no such assistance. We are therefore glad to note that one firm in this category is to have use made of its services by the West Sussex county council, pending the establishment of the consortium already referred to. Cannot this action be extended?

What the Estimates Committee does refer to is its invitation to the Ministry of Education and the Scottish Education Department to reconsider lighting regulations which have sometimes resulted, it is said, in schools being built with excessive expanses of glass. That had long been suspected, though whether complaints have been based on scientific investigation or on teachers' complaints is not clear.

These large areas of window glass may well involve a risk of glare or eyestrain, but it seems unduly pessimistic to suspect 'heat exhaustion due to direct sunlight through the glass' during a normal English summer. Nevertheless, it would be a good thing to have this nice point settled by scientific investigation once and for all.

Architecture with a Social Conscience

THE FOURTH CONFERENCE of the British Architectural Students' Association, held at York last weekend, may be described as a millenium, not only in the life of the student body but also in the attitude of all concerned in the teaching of architecture. Concern with the lack of training in apprehending and defining the changing social and environmental values as the vital motivating factors in solving any architectural problem has been the driving force and 'raison d'être' of BASA. The third and most influential of the students' conferences, held at Balliol College, Oxford, last September, adopted a policy which defined BASA's general attitude to architectural education, setting the trend for future discussions to study in greater detail the implications and their application.

To BASA members it was fundamental that there must be a connection between banality and the general insensibility of contemporary architecture to the social and environmental responsibilities, and the superficiality that exists in schools. The resolutions passed at Oxford contained three significant and basic principles: first, the need for a wide general education; second, the need to develop a logical method of analysis of architectural problems; and third, the need to stimulate the student to evolve a philosophy related to the human problems of society as a basis for future architectural practice.

Thus we come to the York conference where, for the first time, BASA concerned itself with specific problems. The conference was set the task of how to assess human needs, emotions and associations, and how to integrate them as the basis for design—what knowledge and methods were to be used in formulating an architecture with a social conscience. For their three principal speakers BASA brought together a sociologist, an architect with a very sympathetic attitude towards the client-user who has been concerned with the Nottinghamshire School building programme (a significant part of post-war British architecture), and an architectural educationist with radical ideas who is fully appreciative of the problem of training architects today for careers that will reach their peak twenty years from now. There was some disagreement between the sociologist, DR. DENNIS CHAPMAN, and MR. HENRY SWAIN over such misconceptions as 'status architecture,' but the basic tenets of human needs and human behaviour and the responsibility of the architect were held in common by both. The dynamics provided by PROFESSOR LLEWELYN DAVIES and MR. JOHN WEEKS justified BASA's forthright criticism of the established education system. Their announcement of radical changes at the Bartlett pleased all members. The York conference was a resounding success as the publication of the full report will show.

Notes of the Week

BRS Chief Architect; Hong Kong Developments; Building in 20 Years' Time; A 'Face-lift' in Chelsea; Banister Fletcher; Young Sculptors' Work

CONGRATULATIONS to George Atkinson who this month takes over from W. A. Allen the post of Chief Architect to the Building Research Station. This job is one which Allen had made peculiarly his own, and legion must be the number of architects who have sought and obtained his advice on technical and scientific problems connected with their practices. The gap which his translation to the principalship of the Architectural Association school would leave would have been big indeed but for the availability of George Atkinson to replace him. Atkinson is an architect who has made the entire Commonwealth his parish; there can hardly be a town of size, especially in the developing countries, which does not know him and owe a debt for advice, especially on housing matters, and the Colonial Office, which for years past has 'borrowed' him from BRS, will miss him sorely. Fortunately his deputy, Wilfrid Woodhouse—almost as well travelled as his chief—is available to succeed; Woodhouse, who at present is in Kenya, has the same practical slant and genial approach which have made Atkinson's time with the Colonial Office so successful. We wish them both continued success in their new posts.

Hong Kong Developments

JAMES FIRTH, who was Architect to the Government at Trinidad before taking up the post of Architect to the Housing Authority, Hong Kong, writes that he expects to be in England early in November on home leave until March. He is travelling by way of the USA and Canada where he is talking on the subject of Far Eastern housing at high density (or 'ultra-high densities', as he calls them) in various North American centres, including San Francisco, Atlanta, Washington, MIT, Michigan State University, Toronto and Ottawa. Hong Kong, as recently announced, is envisaging large-scale development of its waterfront, and Firth should have much of interest to say. No doubt the RIBA and the Architectural Association will note this when preparing their winter lecture programmes.

Building in Twenty Years' Time

'ONE OF THE BIGGEST DANGERS of any generation is to assume that the state of affairs they know—internationally, politically, socially and technically—will be the same for the next generation. There is no precedence for this in history. . . . Compare the state of the building industry twenty years ago with its vastly superior state today; what will it be like twenty years hence?' These words set the note for what looks like being a stimulating conference organised for the week-end of September 15-17 at Downing College, Cambridge, by the Junior Liaison Committee of Architects, Quantity Surveyors and Builders—stimulating despite the assurance given by M. Alphonse Karr in 1849 that 'the more things change the more they remain the same.'

The conference plan is that an economist (Mr. John Wood, head of the economic section of AEI) will set the scene by comparing the current economic situation here and abroad and setting this against the likely economic and social trends as forseeable twenty years ahead. Mr. Donald Gibson, Mr. P. W. Grafton and Mr. David Woodbine Parish will then weigh in under the chairmanship of Mr. E. D. Jefferiss Mathews on behalf of the architect, the q.s. and the builder, after which discussion groups will take over. The programme sounds interesting and the hundred places which are available should go like hot cakes. Cost of the week-end is £3 5s., and applications should be made to Mr. J. Mackay-Lewis, ARIBA, c/o Robert Matthew and Johnson-Marshall, 24, Park-square East, NW1, enclosing cheque made payable to the Bursar, Downing College, Cambridge.

A 'Face-lift' in Chelsea

WE LEARN that a scheme to give a 'face-lift' to the King's-road, Chelsea, is being co-ordinated by the Civic Trust on similar lines to the successful prototype at Magdalen-street, Norwich. As at Norwich, the Civic Trust has brought together the local authority, local organisations, and many property owners in an effort to achieve a sense of civic design within at least one street. The borough council has agreed to share the cost of a photographic survey as the first step, after which the owners of the various premises will submit their own proposals for co-ordination by the Civic Trust. The part of the King's-road affected is from Sloane-square as far west as Chelsea town hall and everyone concerned has expressed willingness to give the venture full support.

Mr. Dennis Lennon, MC, ARIBA, has now been appointed as co-ordinating

architect, and it is hoped that a unified plan will be available for public exhibition by October. The King's-road is an area which already has come to be accepted as part of the London scene and which would cause much criticism if drastically altered. Part of its charm is the number of antique and bric-a-brac shops which vie with the cosmopolitan coffee bars for popularity, although that part which runs further westward to World's End is the more interesting from the visitors' point of view. All in all, this scheme will not be an easy one to carry out and the final result will be awaited with interest.

'Banister Fletcher'

IT IS SOME INDICATION of the popularity achieved by 'A History of Architecture on the Comparative Method' that it is invariably referred to as 'Banister Fletcher' or even more familiarly, as 'Bannyfletch.' First published in 1896, the book, when Sir Banister died in 1953, had gone through no fewer than sixteen editions, growing in size and usefulness with the years and becoming an indispensable text-book for generations of architectural students and others interested in architecture. Without any sort of question it is the most comprehensive, authoritative and best-illustrated one-volume history of architecture ever published.

Even its most devoted admirers, however, were aware of its weaknesses. The chief of these was in the modern field and it arose mainly from the author's lack of sympathy with the trend of contemporary design. Clearly the book needed expansion and thorough revision under new direction, and this it has now received in the seventeenth edition, just published, and reviewed elsewhere in this issue.

* * *

PROFESSOR CORDINGLEY is to be warmly congratulated on the success of his revision. While carefully preserving the format and all the essential features of this remarkable book he has brought it up to date in every respect (there are a number of virtually new chapters by specialist contributors), greatly increasing its value as a work of reference. The new 'Banister Fletcher,' we may be sure, will carry on the good work of informing and delighting all students of architecture no less effectively in the future than the old one has done in the past.

Young Sculptors' Work

CONTINUING ITS POLICY of encouragement to young painters and sculptors the Institute of Contemporary Arts is currently exhibiting the work of twenty-six sculptors, several of whom have never exhibited work before. Of the forty-two pieces displayed at least twelve may be considered architectural, but all are plainly controversial and a few touch the bottom of strangeness and abstraction. As with a great many works by artists to which the word 'contemporary' gives a universal connotation, the pieces by Paul Demonchaux (reclining figures), Anthony Hatwell ('reclining figure'), Peter Ruddick (torso), Neil Stocker ('Aphrodite' and 'Eve') and George Ward ('Head form and bird') bear a veiled reference to natural shapes and are not too difficult to understand. Bryan MacDonald's 'Form within a Form 1960,' a sort of cork-screw embryo in wood, is clever but then so too is a dog that stands on its hind legs.

Materials of all kinds are used, from traditional bronze and marble to Perspex and ciment fondu—James Davison has created 'Bird 1961' from scraps of steel and asbestos and Tim Scott's 'Open End 1961' in painted plaster appears to have derived its inspiration from an old drain. Two splendid plaster pieces by Eric Stanford, 'Hungry Man with Chicken 1961' and 'Man with a Banner 1960,' with Christopher Lane's two plaster for bronze reliefs, are without doubt some of the best in a very diverse and fascinating display. Detractors of the abstract in art who visit the exhibition should perhaps do so with an open mind, remembering Cicero's 'The vulgar generally judge of things according to pre-conceived opinion, not according to truth.'

Poet's Corner

ON FIRST LOOKING INTO BANISTER FLETCHER'S 'HISTORY'

Much had I pondered on the works of man,
Great buildings in imagination seen,
Magnificent, majestic and serene,
Musing on how the different styles began,
And on the mighty things that once had been;
But never did I apprehend the scene
Completely till I took his book to scan:
Then felt I like some watcher of the skies
When a new planet swims into his ken.
All became clear to my delighted eyes
As text and wealth of illustration then
Entranced me with surprise upon surprise,
Like Cortez on his Peak in Darien.

ANON + KEATS.

Letters to the Editor

Competition System Under Review

SIR,—I think that Sir Thomas Bennett has done some good by writing on competitions, and I hope that he will pursue the matter in an effort to reduce the cost of entering, rather than eliminating competitions.

Many requirements in competition conditions seem an unnecessary waste of time, such as 'a sheet of ½ in. details,' and the new one of a 'cost analysis.' These could be equivalent to an architect being fined £100 for entering. I see no reason why even an ordinary 'estimate of cost' is asked for, as an assessor could probably tell in a few seconds if a scheme were wasteful. For certain projects it might even be desirable to prohibit elevations altogether as the plans and sections would suffice to explain the scheme for, in the matter of appearance, one man's meat is another man's poison. I have in mind severely functional buildings where a solution to a problem should not be dependent on controversial matters of appearance, as a skilful architect can modify elevational details to almost any requirement of his client, and the element of luck is reduced as there is less chance of an assessor turning down a good scheme because he does not like elevations which some would admire greatly.

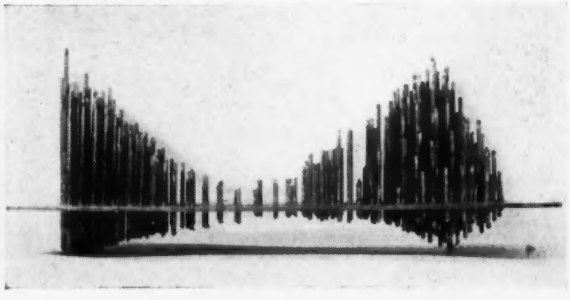
Perhaps Sir Thomas could be induced to enter the ranks of competitors and win some world competition?

A. D. CORDINER [FRIBA, AMTPI],
2 Woodlands-terrace,
Charing Cross,
Glasgow, C3.

SIR,—I feel sure that a vast majority of your readers would like to congratulate Mr. Arthur W. Kenyon on his most excellent letter ('The Builder' of August 25), wherein he completely demolishes the case for limited competitions as put forward by Sir Thomas Bennett. Some recent experiences of this system must make it abundantly clear that 'limited' architectural competitions must be prevented on every occasion.

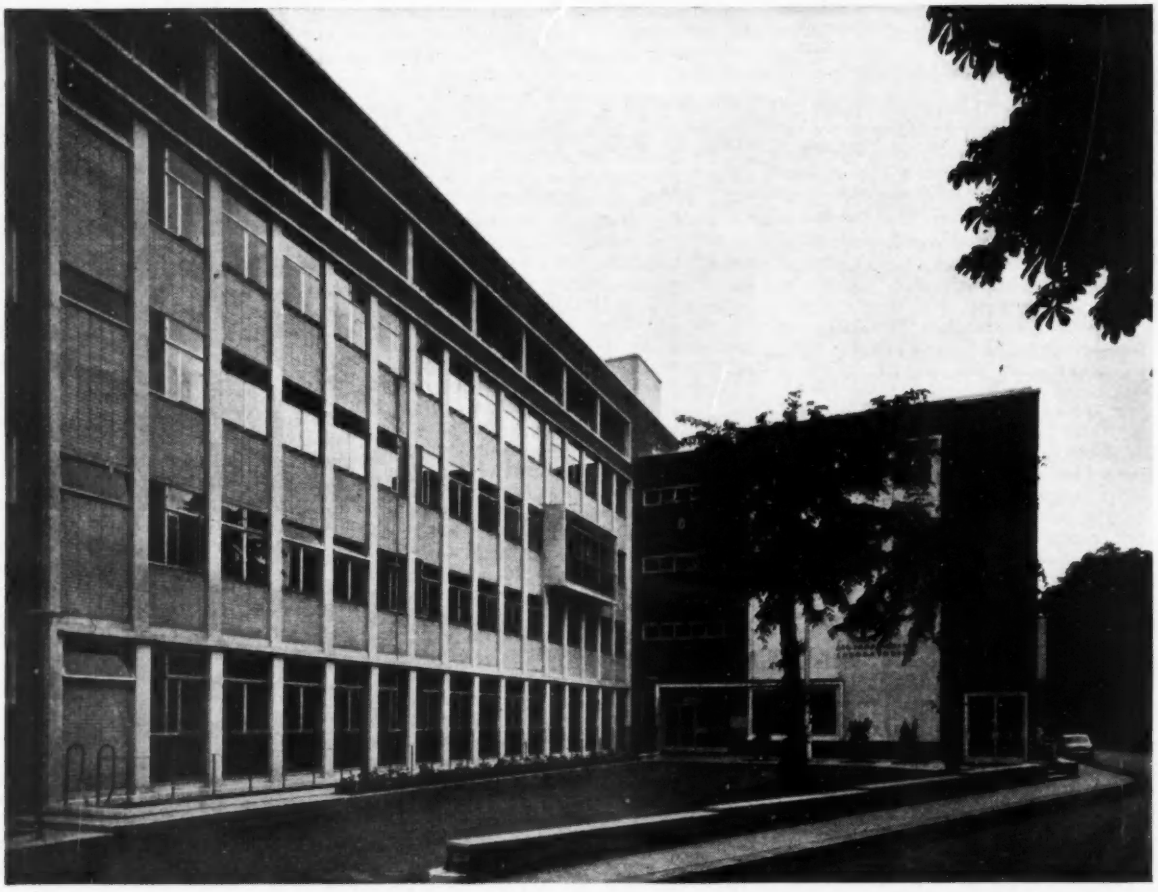
SIDNEY LOWETH [FSA, FRIBA, FRSA]
2 Balfour-court,
Folkestone,
Kent.

TWO SCULPTURE EXHIBITS AT THE INSTITUTE OF CONTEMPORARY ARTS.—*Left: 'Form within a Form, 1960,' by Bryan Macdonald. Right: 'Construction No. 7, 1957,' by John Youngman, a musical instrument for playing 'musique concrete.'*



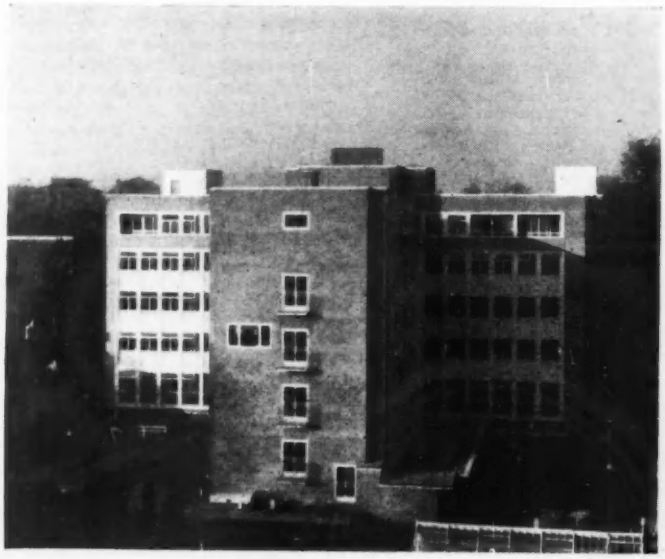
Laboratories for Queen Elizabeth College

ADAMS, HOLDEN & PEARSON, F/ARIBA, architects
R. TRAVERS MORGAN & PARTNERS, consulting engineers
HOLLAND & HANNEN AND CUBITTS LTD., general contractors



main frontage and forecourt

rear elevation



main entrance

THE SIR JOHN ATKINS LABORATORIES were opened in May 1961 by HM Queen Elizabeth, Chancellor of the University of London. The new building, for Queen Elizabeth College, is situated in Campden Hill and houses three main departments, biology, microbiology and nutrition with a separate isotope unit situated on the top floor of the south wing for use of any department needing to work with radio-active materials.

The nutrition department, whose area is 12,000 sq. ft., has been specially designed for nutritional teaching and research. The department was founded after world war II following the establishment by the University of London of the degree BSc (Nutrition), still the only degree of its kind in the world.

The large laboratory provides for 42 undergraduates and the small teaching laboratory for 12 advanced students with accommodation for 22 research workers. Ten animal rooms are provided on the topmost floor of the centre block housing rats and mice used in studying nutritional problems. The animal rooms are fully air conditioned.

The department of microbiology, already known for its research, has fully air-conditioned research laboratories on the second floor and is probably one of the best equipped non-medical microbiology departments of any university in the country. At present the department's undergraduate teaching is confined to ancillary courses, but the large teaching laboratory with 40 student places is admirably fitted for the purpose of a BSc (special) degree in microbiology if the University introduces such a degree.

The department of biology occupies the whole of the ground and first floors and part of the lower ground floor for zoological and botanical teaching and research. The department has accommodation for 20 research and teaching members and the two large teaching laboratories each have sixty places for undergraduates.

Two terraced lecture rooms, one on the lower ground floor and one on the ground floor each provide for seating 84 students.

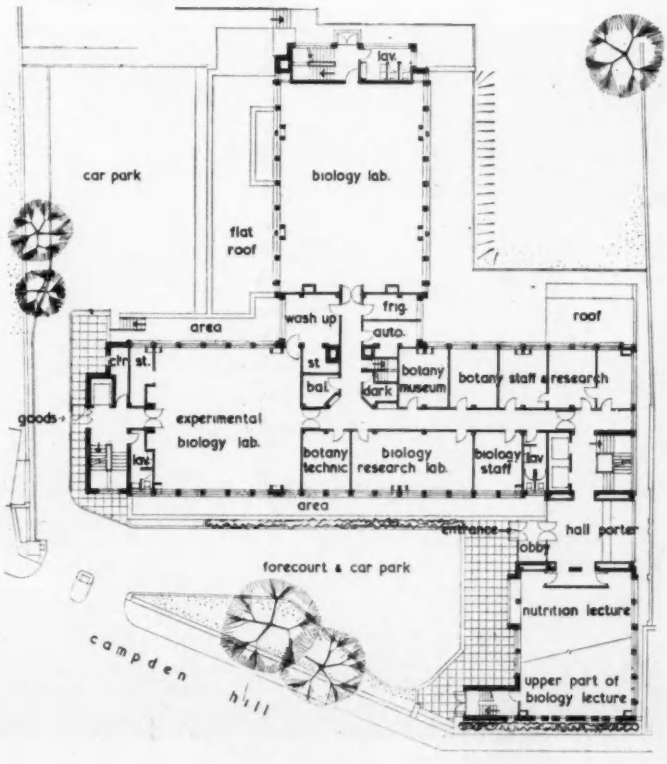
The building is in reinforced concrete with flush structural floor slabs, clad in Buckingham facings of a grey-brown colour with infilling panels between the windows of the centre and south blocks of Gault buff bricks.

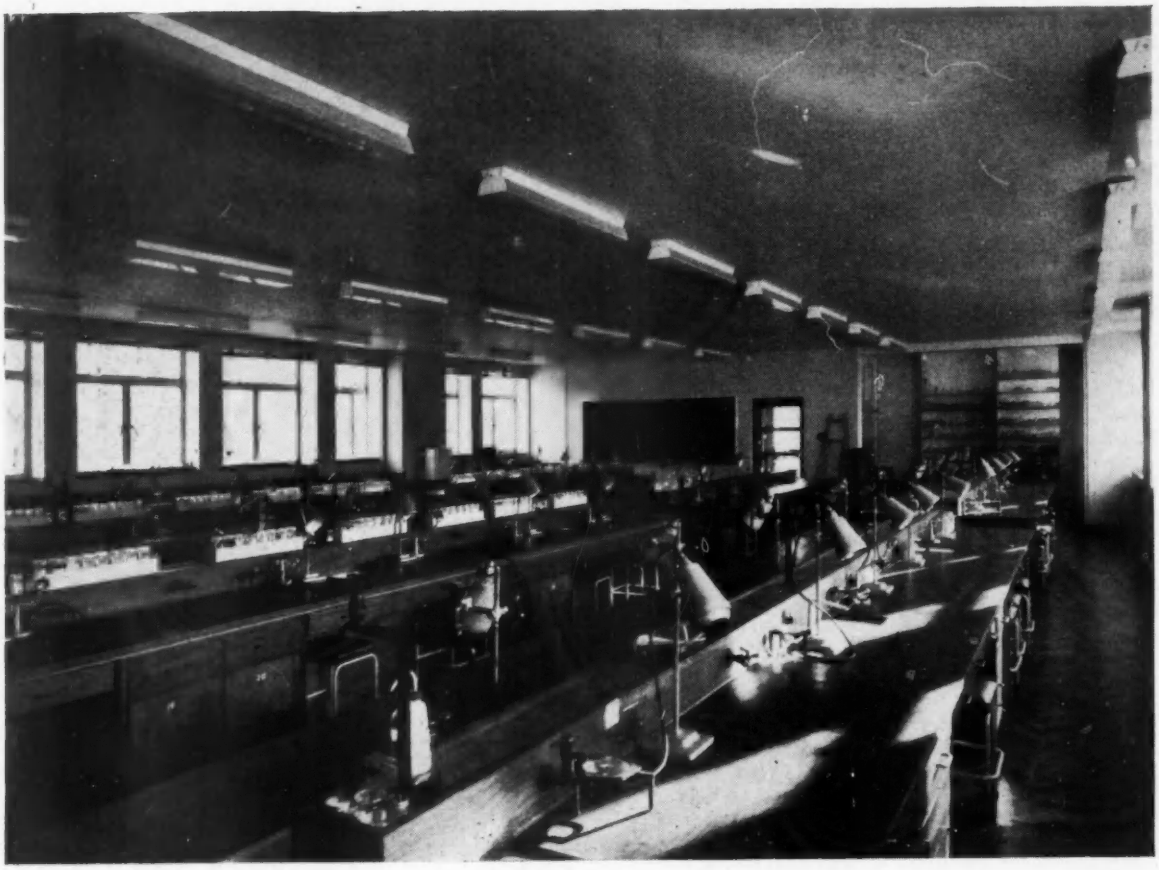
Reconstructed Portland stone dressings are applied to the structural columns and to parts of the north wing. Aluminium has been used for windows and external doors with coloured glass panels in the ground floor windows.

The system of space heating is by

main staircase

GROUND FLOOR. Scale: in. = 40 ft.

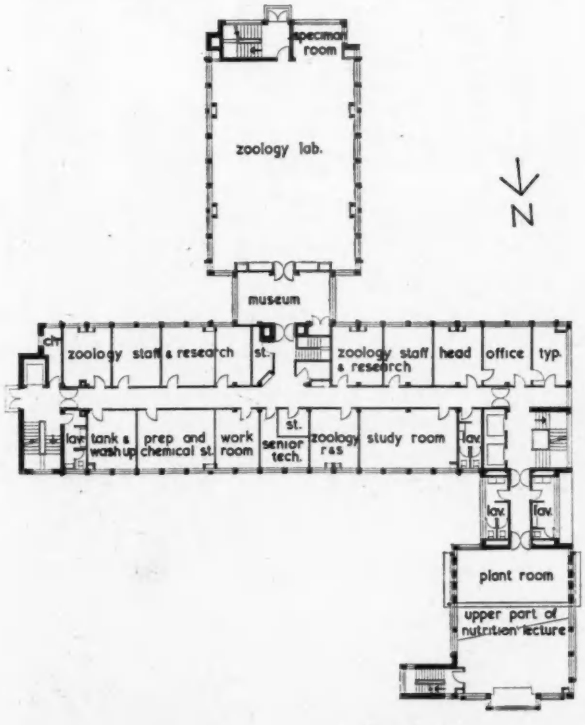




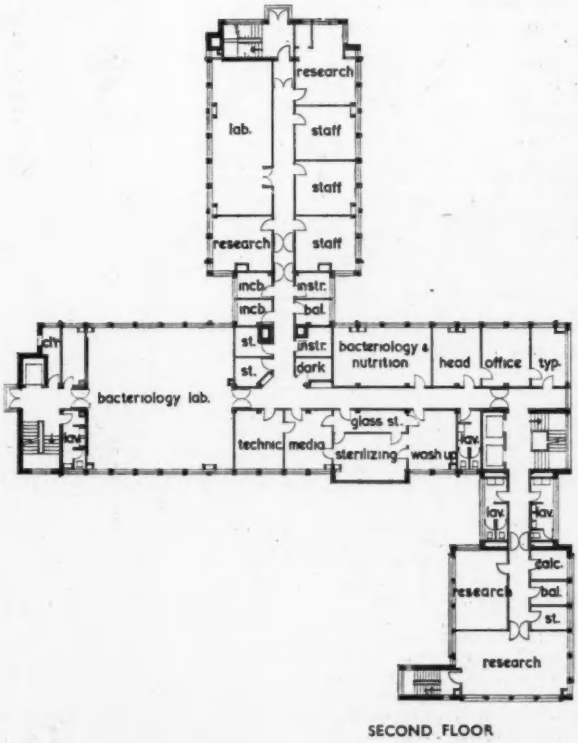
large zoology laboratory, first floor

experimental biology, ground floor

entrance hall and porter's desk



FIRST FLOOR

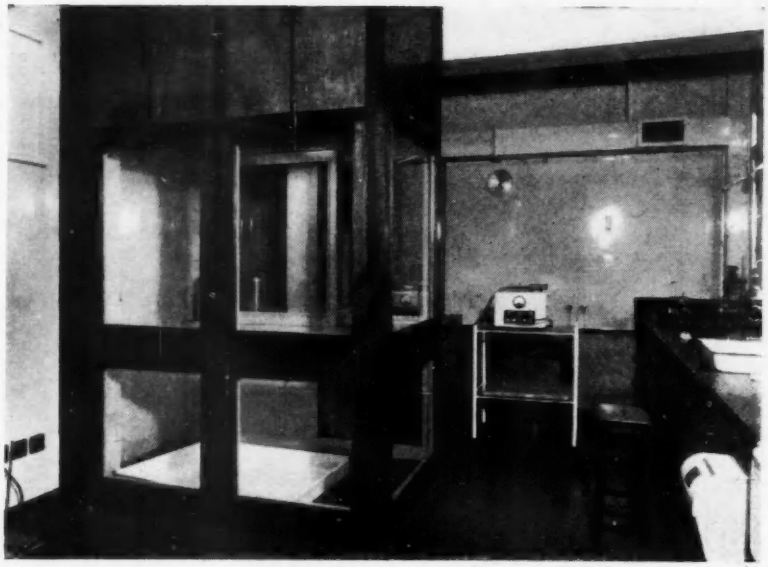


SECOND FLOOR

Laboratories, Queen Elizabeth College

embedded ceiling coils. Internally the building has plastered walls, painted, to all rooms except the animal rooms where cement glaze has been used with terrazzo floors. Wood block floors have been used in laboratories and corridors. Quantity surveyors: Widnell & Trollope, F/ARICS.

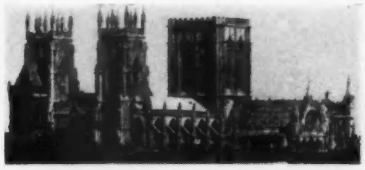
Right, laboratory with fume cupboard in the isotope unit, fourth floor. Below, large biology laboratory, ground floor. Below right, animal room in the nutrition department, fourth floor



sub-contractors & suppliers:

Terrazzo flooring: Art Pavement & Decorations Ltd.; *railings and balustrades:* E. C. Blackmore Ltd.; *hardwood screens:* D. Burkle & Son Ltd.; *suspended ceilings:* Clark & Fenn Ltd.; *stone and wood carvings:* Alan Collins (ARICA); *tarmacadam roads:* Constable Hart & Co. Ltd.; *animal racks:* E. Coules & Son Ltd.; *metal windows and gear:* Crittall Manufacturing Co. Ltd.; *mechanical services:* Richard Crittall & Co. Ltd.; *plumbing and cast iron drainage:* Dent & Hellyer Sanitation Ltd.; *stonework:* Empire Stone Co. Ltd.; *glazing:* Faulkner Greene & Co. Ltd.; *lightning conductors and flagstaff:* J. W. Gray & Son Ltd.; *laboratory fittings:* Holland & Hannen and Cubitts (Joinery Department); *wood block flooring:* Hollis Bros. Ltd; *hand operated lift:* George Johnson Ltd.; *steel reinforcement:* T. C. Jones & Co. Ltd.; *cork flooring:* Korkoid Decorative Floors; *duct trays:* Light Steelwork Ltd.; *asphalt:* Limmer & Trinidad Lake Asphalt Co. Ltd.; *lettering and inscriptions:* George Mansell; *lifts:* Otis Elevator Co. Ltd.; *cement glaze finishes:* Robbs Cement Enamel Finishes Ltd.; *painting and polishing:* South London Decorators Ltd.; *plastering and granolithic pavings:* Thompson Bros. Ltd.; *electrical installation:* Tyler & Freeman Ltd.; *wall tiling:* Wiggins-Sankey; *sanitary fittings:* J. Bolding & Sons Ltd.; *ironmongery:* Comyn Ching & Co. Ltd.; *precast concrete slabs:* Concrete (Southern) Ltd.; *metal sliding doors:* Flexo Plywood Industries Ltd.; *dome lights:* T. & W. Ide Ltd.; *flush doors:* Leaderflush Doors Ltd.; *precast canopy lights:* Lenscrete Ltd.; *hose reels:* Mather & Platt Ltd.; *joinery:* Charles Price.

The BASA Conference at York



A Basis for Design Established

FROM OUR OWN REPRESENTATIVE

THE STUDY OF ENVIRONMENT and user requirements and how they were to be integrated as a basis of architectural design was the problem set for discussion by the eighty delegates and main speakers attending the fourth conference of the British Architectural Students' Association at York from September 1 to 3. The theme of the conference arose from a statement made by SIR LESLIE MARTIN, FRIBA, during the second conference at Oxford in September, 1960. Sir Leslie, condemning the prevalent system of education which aimed at producing the 'one-off prima donna architect,' suggested that the object of education was to study the form of our environment. Few problems, he continued, could be more complicated, more diffuse or more over-loaded with prejudice. Furthermore, a subject of this complexity could not be studied by architects in isolation; it had to be shared by others—sociologists, economists, historians. Thus the York conference was set to consider what knowledge, skills and methods were to be used to assess human needs, emotions and associations.

The venue for the conference was the Institute of Advanced Architectural Studies, housed in the converted church of St. John, Ousebridge in Micklegate, within a stone's throw of the city wall and only five minutes walk from the cathedral. The first day, September 1, was confined to the domestic business of travel, signing in, dinner and introductions. Accommodation was well provided at the York Institute of Agriculture, and delegates were finally put at their ease with a party and film show, the latter consisting of animated funnies and one incredible historical piece about the early days of the motor car.

Paper on 'People'

On Saturday morning (September 2), after a few introductory remarks by chairman CHRIS. MUSSON (ex-Cardiff), the retiring BASA president, the first paper, 'People,' was given by sociologist Dr. Dennis Chapman of Liverpool University. DR. CHAPMAN began by stating that the architect should begin with a set of generalisations about human needs and human behaviour, and modify these in the light of the special requirements of a particular problem. He accused the designer of considering one function when in fact many were to be fulfilled. A building worked, he said, in terms of the social structure of the people who used it, and an architect must have knowledge of the social structure of the organisation, institution or community if he was to discern and resolve conflicts of need and behaviour. He had to examine matters in relation to capital and running cost; and he had to take account of social trends which would take place during the life of his building—a dwelling house, for example, had to be considered in relation to the pattern of contraction and expansion of a family.

Dr. Chapman suggested three fundamentals to be considered—size and shape; physical needs and tolerances; and general tendencies, i.e., phototropism—a signal post-war failure was the absence of a satisfactory standard for the design of chairs. This, the speaker thought, was a job for architectural research in relation to the size and shape of the human being. It was necessary to observe human activity in every conceivable situation—the individual and the group use of confined spaces, the application of heating and insulation, etc. The British climate probably accounted for the cavalier use of heating and insulating techniques but it had to be considered that a building had four elevations, each exposed to a different climate.

As a sociologist Dr. Chapman pointed out that environment and its effects on human behaviour should be studied—the tendency, for example, of people to move towards light. Here much could be learnt from the ancient wisdom of the church.

Dr. Chapman next discussed culture—the popular aesthetic (furniture, clothing, the fairground); and the institutional aesthetic (churches, banks, the post-office). The pattern of building, he said, was very much associated with social status. For the professional and middle classes this involved physical separation, although they could occasionally be persuaded to live in a terraced house. The physical separation of dwellings was of major importance in the expansion of towns. Other points which came under the general heading of culture were the status symbol (canteens for different levels of authority—function subordinated to status), magic, religion and sentiment. The status-symbol had played an important part in producing the problems now faced by planners. The home counties of London, for example, were no longer in the countryside because they

Relaxing between working sessions outside the York Institute of Advanced Architectural Studies (Photographs by Edwin Johnstone)

Left background group: Michael Cassidy (Bartlett), Chris Musson (retiring president) and Mr. Gontran Goulden, ARIBA. Centre: Mr. Frank Guy, ARIBA (Portsmouth), Professor R. Gardner-Medwin, FRIBA (Liverpool) and Dr. Dennis Chapman. Right: Hilary Chambers (past-president) in conversation with Dr. and Mrs. Chapman

were full of people who wanted to live in the country. The motor-car had produced a similar predicament. Organisation and control were now necessary.

The speaker felt that the architect had to be concerned with these basic patterns of interaction; the hierarchical social structure—the conflict between status-power and functional requirements; the conflict between mechanical and social efficiency; and the problem of identifying the client (i.e., in a factory the owner or the workers, in a school the education committee or the teachers and pupils) and reconciling the conflicts of purpose. There were also the problems of the life cycles of human groups and the life of buildings; and the recognition of social trends.

On the question of the relationship between the architect and his client Dr. Chapman thought that generally speaking the latter could not be relied upon to make a sensible choice, the only thing he could specifically state was that he wanted comfort. The architect, therefore, inherited a great responsibility but architectural influence could only be achieved through political influence. The status of the architect was changing.

Building for People

THE SECOND main paper of the conference, by MR. HENRY SWAIN, ARIBA, dealt with school building with specific reference to what the speaker called 'an inquiry by architectural analysis' into the client's requirements. 'The requirements of the client or clients,' said Mr. Swain, 'are very much a neglected side of architecture. There is too much speculation about how people ought to live and not enough sympathetic understanding of how they in fact do. The renaissance attitude still persists in which there is too much concentration on style and not enough realisation of the architect's responsibility. Modern architecture, in contrast to the architecture of previous times, has to meet the needs of everybody. The architect has to distinguish between obsolescence and the emergence of new trends.'

Introducing the subject of architectural analysis, Mr. Swain pointed out that the client did not know what he wanted; what he thought he wanted was based on what he had seen built before. There was a need, therefore, to study what people were actually doing in collaboration with the client—the architect needed to have far more knowledge of the way buildings were used than any schedule of accommodation could possibly indicate. A weakness of modern architecture was that no adequate methods had been developed to determine what were the needs of users of buildings—the design of living communities did not reflect present modes of living.

Mr. Swain disagreed with Dr. Chapman over the question of status symbols as applied to architecture. The 'Milan school,' he said, was in direct opposition to 'status architecture'—modern architects, as such, were not concerned with status symbols at all. In school architecture the most important development was the complete client-architect relationship. He felt that the initial question to the client was not 'tell me what you want' but 'show me what you do.' Thereafter the architect should take a detailed interest in his client's problem, recording facts, ideas and ambitions to plan for the future development in education. At this stage there was a need to talk about activities and not about buildings.

At Nottingham the method used to prepare a comprehensive architect's brief for a school was to interview over a period of several weeks all concerned with the particular school—the director of education, headmasters, teachers and even the humble caretaker—the latter had a function to perform which had to be properly catered for. During the period of these interviews sketch layouts were made and fully documented information was obtained for what Mr. Swain called a 'specification for architecture.' After this summary of inquiry reports had been completed there came design—the translation of an architectural analysis into the design of the building. During this process there was no case for consultants, statisticians or specialists between user and designer.

Mr. Swain summed up what he had said by stating three main points: first, the architect must work with the client (user) from the very beginning; second, he must 'soak' in all he can of the background, identifying himself with whatever the buildings were to be used for; and third, he must study jobs of a similar kind, whether old or new, looking for problems, not solutions. The architect must collect all measurable facts and record objectively everything seen and heard.

Architecture, concluded Mr. Swain, was a means to an end, not an end in itself. He pointed to the paradox of school building, which had been mostly subordinated to an end beyond itself, being the most significant British architecture today. The architect's real creative work was inspired not by style, but by a systematic acquisition and detailed knowledge of the people for whom he was designing. It should be assumed that there are very few bad clients; just bad architects: the responsibility for establishing the programme for the building must lie with the architect. In all this there was a danger of the architect having an opinion, for example, about education; but it must be remembered that he is the interpreter of ideas from the client.

Conflicting Opinion from Clients

In discussion MR. PAUL RITTER, ARIBA (Nottingham), thought that the architect was bound to get conflicting opinion when trying to prepare an analysis. MR. SWAIN replied that the architect should try to incorporate the less progressive with the programme, but maintain always flexibility; the impact for good or evil was going to affect a lot of people.

To a question from MR. FRANK GUY, ARIBA (Portsmouth), about external appearances having an identity with the function of a building (MR. GONTRAN GOULDEN, ARIBA, had previously remarked that of all building today schools did have a personal identity—'they looked like themselves'), MR SWAIN thought that emphasis should be on equipment, efficient working conditions and comfort.

MR. PERCY JOHNSON-MARSHALL, ARIBA (Edinburgh), thought that a wide knowledge of a building type could only come from a large corpus of work and combined effort, as it had with educational building.

MR. HUGH MORRIS, ARIBA (London), sug-

(*Continued on page 432*)

Swindon Technical College

CHARLES PIKE, FRIBA, & PARTNERS, architects, in association with
F. I. BOWDEN, ARIBA, Wiltshire county architect
GEE, WALKER & SLATER, LTD., general contractors

THE RAPID DEVELOPMENT of Swindon as an industrial and overspill area made the existing technical college inadequate to meet the growing demands on its resources. The new buildings form the first stage of an expansion scheme and provide an additional 84,000 sq. ft. of accommodation at a total cost of £402,000.

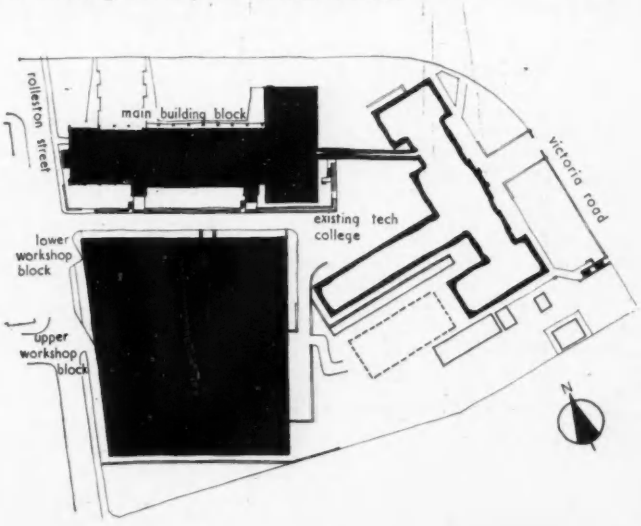
The new six-storey teaching block has been linked to the existing building by a glazed bridge at second floor level and a similar connection at ground level. The workshop accommodation is provided in single storey construction at the rear. The disposition of the buildings on the site was governed by its steep slope and by future road developments involving a new traffic circus to which the main block has been related.

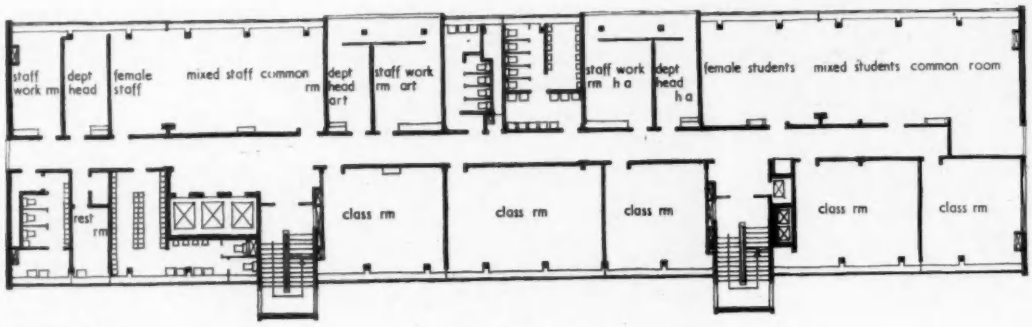
The teaching block has been designed to provide practical rooms with staircase access, and general teaching and ancillary rooms with corridor access on alternate floors. This arrangement groups together the larger rooms requiring a height of 12 ft. floor to floor for their depth of 24 ft., while the small classrooms, lavatories, etc., which are 10 ft. floor to floor, occur each side of the corridors. As a result, considerable economy is achieved in both area and cube. The differentiation between the floors has been emphasised to add interest to the elevations by the use of full height timber window and wall units contrasted with metal windows on intermediate floors, and the main elevation is punctuated with recessed balconies to express the rooms of the heads of departments.

The construction of the teaching block is of reinforced concrete frame on piled foundations. The cross section of the building presented a structural problem which was solved by cantilevering pairs

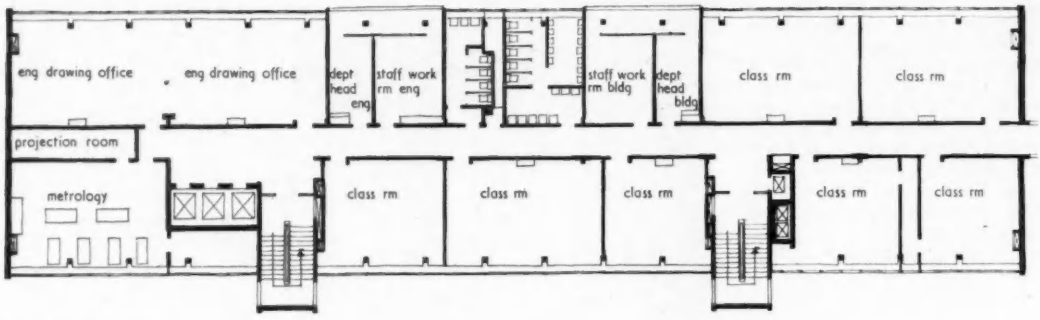
workshops and teaching block from Rolleston-street

main façade illuminated

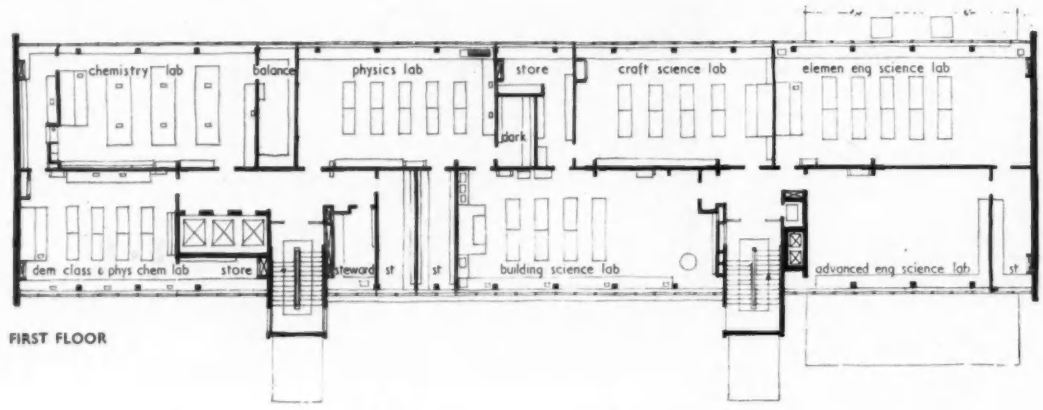




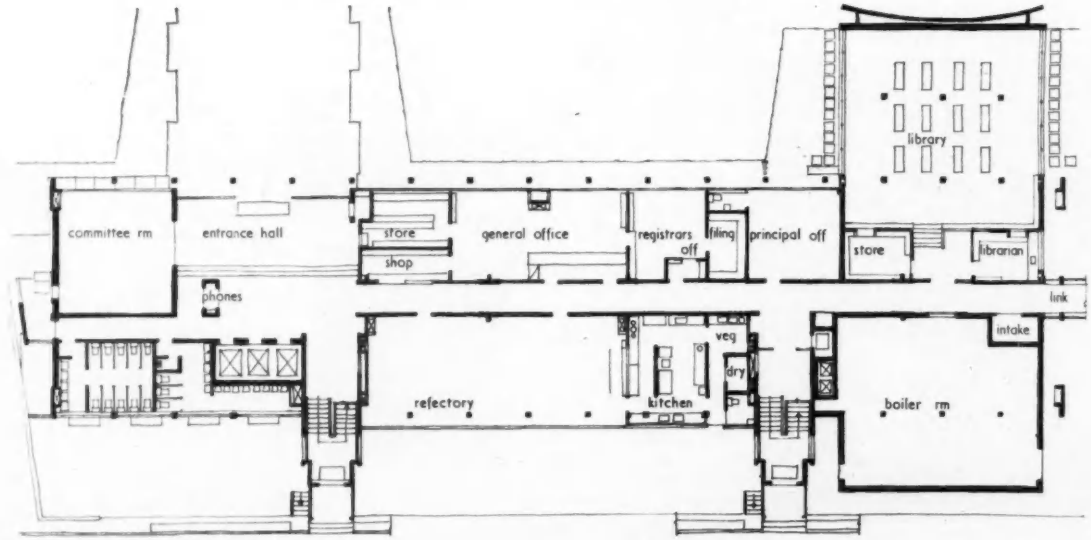
FOURTH FLOOR



SECOND FLOOR

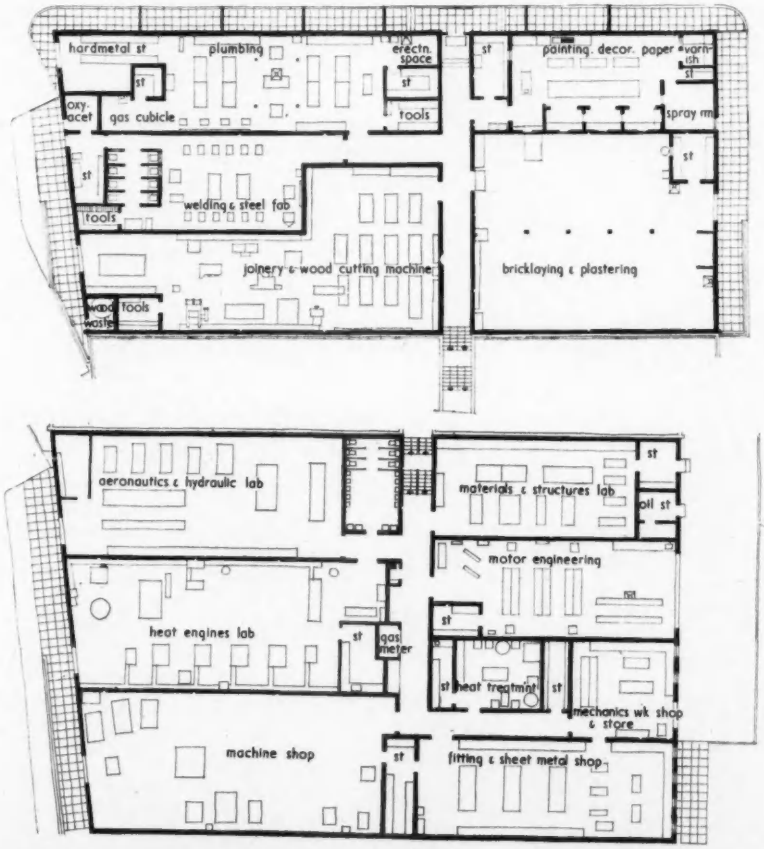


FIRST FLOOR



GROUND FLOOR, Scale : 1in. = 32 ft.

bridge link between new and existing buildings



WORKSHOPS, Ground and first floor. Scale : 1 in. = 40 ft.

of columns, generally of T-section, on the corridor floors from a single row of cruciform columns running down the central spine. The flank walls at each end of the building are of 11 in. cavity brick construction supported at each floor level on concrete nibs. Internal partitions consist of 4½ in. plastered brickwork. The 6 in. thick r.c. walls of the staircases provide wind bracing and support the weight of the water storage tanks immediately above them. Services run in ducts at ceiling level in the centre of the building.

The workshop block is of load bearing brick generally with 9 in. cross walls on strip footings. The roof is of in situ reinforced concrete spanning between upstand beams at monitor lights. It was decided to suspend all services from the ceiling to allow flexibility in the arrangement of machines.

Heating is by means of three Oilex boilers, each of 2,200,000 B.Th.U's per hour capacity, supplying warm air fan convectors in the teaching block, radiant ceiling panels in the workshops, and a calorifier in the existing building. The oil storage tanks are underground and are of reinforced concrete cast in situ and lined with ceramic tiles.

The lift installation consists of three 10-passenger triplex interconnected lifts at a speed of 200 ft. per minute, with up and down collective control.

The external finishes include white, light blue and black glass mosaic, untreated cedar boarding and facing brick. The re-entrant sides of the balconies are faced with yellow mosaic for emphasis and infill panels in glazing are 'Vitroslab' units coloured dark grey.

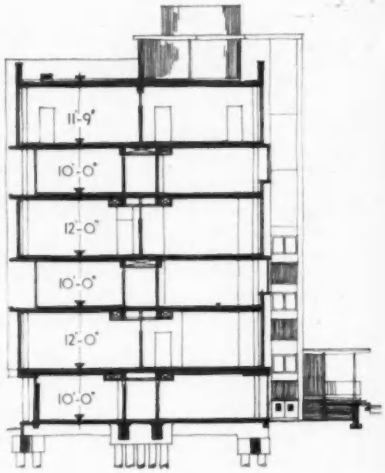
Internal walls are plastered and painted with emulsion paint, an additional clear glaze being used in corridors and staircases. The entrance hall and committee room have been panelled in moulded hardwood. Vinyl floor tiles are used in practical rooms, thermoplastic tiles in class rooms and gurjun strip flooring in laboratories. In the latter rooms, the wood flooring is laid on joists and counter joists resting on the structural slab to facilitate the running of services to benches. In the workshop block an in situ plastic flooring is used which is proving very satisfactory.

The front of the teaching block is landscaped with outcrops of large Sarsen stone and planted with shrubs and trees. A 10 ft. wide pool along the front elevation, functions as a static water tank of 10,000 gallon capacity to the requirements of the Fire Officer. The building is floodlit by means of nineteen 1,000 watt lights operated by a solar switch.

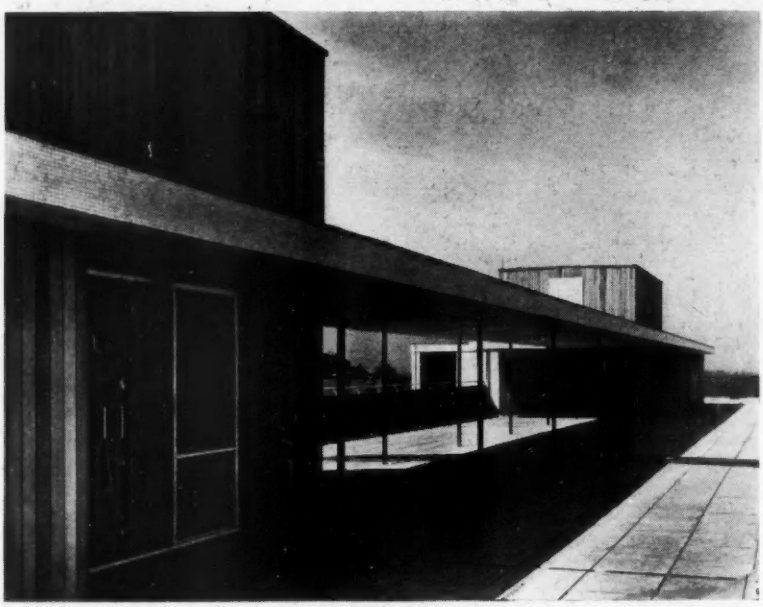
The nett cost per sq. ft. of accommodation in the teaching block was 85s. and in the workshop block 65s. 5d. Contract time: December, 1958 to April, 1961. Quantity surveyors: Bare, Leaning & Bare; consulting engineers: Donovan H. Lee, MICE, & Ptnrs.; mechanical and electrical consultants: E. A. Pearce & Ptnrs.; clerk of works: F. Barker.

sub-contractors & suppliers:

Reinforcement: Frazzi Ltd., Guest Keen & Nettlefolds (S.W.) Ltd.; *piling:* Cementation Co. Ltd.; *facing bricks:* R. Y. Ames Ltd.



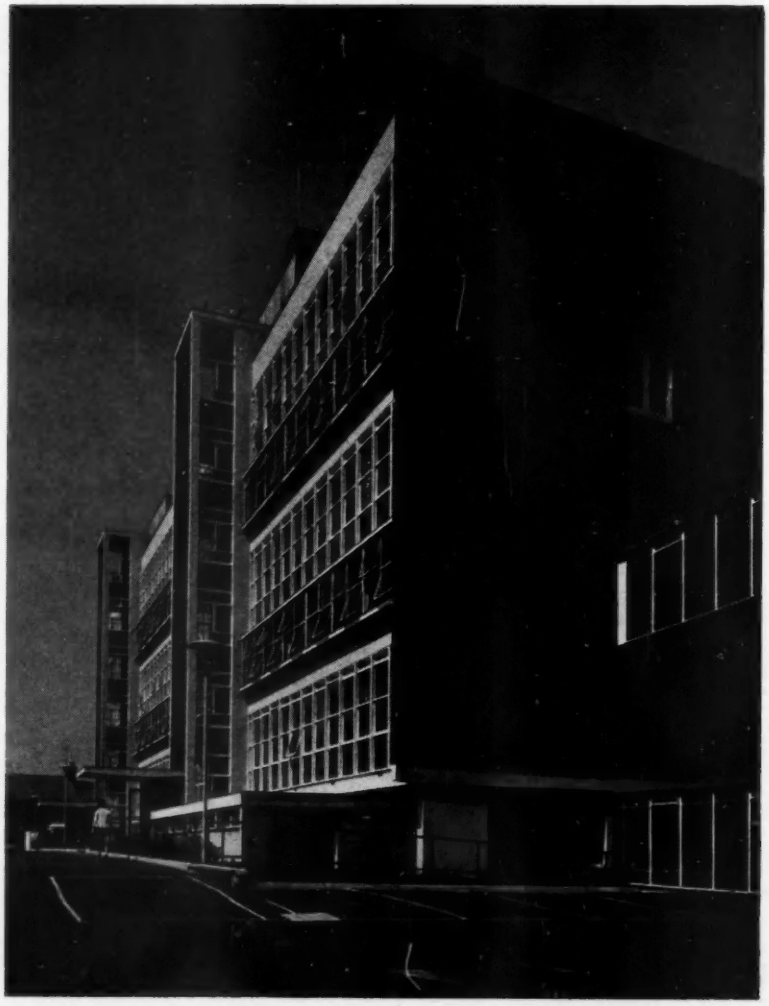
cross-section through main block pool along the front elevation



lift motor and tank rooms at roof level

south elevation of teaching block, and bridge links

staircase exit, south side



asphalting: Faldo Asphalte Co. Ltd.; *slate coping cills:* Bow Slate & Enamel Co. Ltd.; *lino tile paving:* Lino Tile Co. Ltd.; *plastic tile paving:* Neuchatel Asphalte Co. Ltd.; *Plasik composition paving:* Vigers Bros. Ltd.; *roof decking:* Wm. Briggs & Sons Ltd.; *bit. felt & Paropa flat roofing:* Frazzi Ltd.; *vert. tile hanging:* R. Y. Ames Ltd.; *H/W block strip flooring:* Hollis Bros. Ltd.; *ironmongery:* Mountford Bros. Ltd., Comyn Ching & Co. Ltd., Dales Lettering Ltd.; *sliding door gear:* Gardiner Sons & Co. Ltd.; *notice boards & signwriting:* Dales (Lettering) Ltd.; *airing rack:* Comyn Ching Ltd.; *curtain overhead track:* Tidmarsh & Sons; *structural steel:* John Lysaghts Ltd.; *metal windows:* C. E. Welstead Ltd.; *w.c. cubicles:* Wm. Mallinson & Son Ltd.; *blackout blinds:* Tidmarsh & Sons; *window cleaning equipment:* Cradle Runways Ltd.; *kitchen equipment:* Radiation Group Sales Ltd.; *glazed canopy:* C. E. Welstead; *Perspex dome roof lights:* Greenwood's Airvac Ventilating Co. Ltd.; *patent glazing:* Faulkner Green & Co.; *safe door:* Chubb & Sons Ltd.; *cat ladders & balustrades etc.:* The Wessex Guild Ltd.; *hose reels:* L. & G. Fire Appliance Co. Ltd.; *roller shutters:* G. Brady & Co. Ltd.; *mechanical services:* Arthur Scull & Son Ltd.; *lab. bench gas valves:* J. & S. Folkard Ltd., Stitsons Sanitary Fittings; *electrical services:* T. Clarke & Co. Ltd.; *lift installation:* Hammond & Champness Ltd.; *cement glaze wall finish:* Robbs Cement Enamel Finishes Ltd.; *ceramic mosaic tiling:* Artistic & Industrial Floorings Ltd.; *sanitary fittings:* Stitsons Sanitary Fittings; *plumbing:* Gee, Walker & Slater; *collapsible gates:* Gardiner & Sons Ltd.; *overhead trav. gantry crane:* Geo. W. King Ltd.; *hydraulic vehicle lift & air compressor:* V. L. Churchill & Co. Ltd.; *woodwaste extraction plant & spray painting plant:* Dustraction Ltd.; *machine mounting pads:* James Walker & Co. Ltd.; *planting:* Borough of Swindon, Hills of Swindon; *duct covers:* Broads Manufacturing Co.; *flagstaff:* Turtle & Pearce Ltd.

Swindon Technical College

chemistry laboratory

aeronautics laboratory

the library and (left) control desk

(*Continuing from page 426*)

gested that an architect might not be able to prevent his own ideas on education from influencing the plan. MR. SWAIN agreed that an architect could not entirely remove his own ideas—if a teacher said something quite awful it was difficult not to rule it out. He mentioned, however, that there were instances of great educationists who were not architects, like Henry Morris at Impington, who have had a profound influence on school architecture.

EDWIN JOHNSTONE (Hull) spoke of the gap between the lay public and architects, the former being generally ignorant about architecture. On this point MR. SWAIN again reminded him not to talk about building with the client, but to talk about the client's own work and get his imagination working. He himself found that clients did then generally respond to architecture.

PROFESSOR GARDNER-MEDWIN, FRIBA (Liverpool), thought the most significant thing about the two papers so far submitted was that no aesthetics were discussed, although it was possible that this was a status symbol in the schools of architecture. There was an obsession with the aesthetic problem rather than with the problem itself. A study of building emerging out of this understanding he felt would lead to the most significant architecture of our time.

'Education for Building'

THE THIRD AND FINAL main paper, presented jointly by PROFESSOR LLEWELYN DAVIES, MA, FRIBA, and MR. JOHN WEEKS, ARIBA, dealt with a completely new course that is being implemented at the Bartlett School of Architecture, London University. The new course, which is already partly under way, is based on wider and more comprehensive studies than hitherto, resulting in a degree at the end of the first three years (the period of education) followed by a two-year, post-graduate course leading to a diploma in architecture (the professional training). The degree course will result in exemption from the RIBA intermediate examination, and the post-graduate two years, exemption from RIBA final.

Explaining his reasons for the change, PROFESSOR LLEWELYN DAVIES said he was planning for the architecture of twenty years from now and for those students now embarking on such a course who would then be at the peak of their professional careers. Architecture, continued the speaker, will come into closer relationship with the building and construction industries during this period. It was essential, therefore, that the architect should be fully equipped to deal with this situation, rather than to drift into methods of explanation which were not education at all. He had devised an academic course that compared with other professional bodies, the corollary of this being that the standard of entry would have to be raised to as high a standard as possible.

The aim of the Bartlett School was to provide knowledge and to exercise the mind. It was intended to cut out theory of architecture, a subject traditionally taught by the head of the school, which, the Professor said, was rather like a Portuguese man-'o-war, 'a marine object long since extinct.' In his view there was no such subject. Subjects to be included in the degree course were sociology, physiology, biology and history of architecture. Building management and economics would be taken, so too would professional practice 'and a great deal more.'

Describing the design syllabus, MR. JOHN WEEKS said that the students in most schools were encouraged to leap into the concepts of design far too early in their careers. Courses he continued, should not establish a false atmosphere—initially at the Bartlett there will be exercises in space in relation to the individual. During the second year students would plan projects in sufficient detail to show that they could use materials—a study of design in relation to materials. Third year students would study the social use of buildings by groups and also the relationship of one block with another. During the fourth and fifth years the study of design would gradually expand and the students would tackle an increasing number of angles from which design had to be dealt with.

Professor Llewelyn Davies also spoke of plans to develop a post-graduate study group with a practice so that students could be given experience comparable to that given to medical students at a teaching hospital.

Lay People and Architects

ONE INTERESTING discussion group was that lead by DR. JANE ABERCROMBIE, which considered the relationship between lay people and architects. Introducing the subject, Dr. Abercrombie pointed out that a visual illusion would demonstrate that perception depended on the schemata or assumptions one uses, mostly unconsciously—appropriate assumptions facilitated perception, inappropriate ones distorted it. Efficient communications between people depended on their reciprocal perceptions of each other (relevant to their joint task) being sufficiently matched or true. Lay people had assumptions about the nature of architects which were unlikely to match those the architect had, their experience of architects and architecture having been so dissimilar. Communication between them was, continued the speaker, unlikely to be confused, but might be improved if the basic assumptions were consciously recognised.

It was suggested that the following factors were among those that contributed to the layman's assumption about architects:

Buildings were the most permanent of human artefacts. They did not easily keep up with social changes but were difficult to scrap, because they took a long time to make and were expensive, and because people became attached to the things they were accustomed to, however inconvenient.

The visual effect of new buildings tended to be controversial. Although only great buildings and unconventional new ones might be looked at attentively by the majority of people, the 'building-scape' to which they were continually subjected was a very important part of their visual experience.

As far as the functional effect of a building was concerned extremely few people would see the whole of the inside of the building, let alone use it. People so easily habituated themselves to their own micro-environment that really new thinking was very difficult.

Left: Mr. John Weeks, ARIBA (Bartlett), Mr. A. R. Davis, Michael Cassidy (Bartlett), Chris Musson (ex Cardiff) and Mr. Percy Johnson-Marshall, ARIBA (Edinburgh). Centre foreground: Mr. Raymond Moss, ARIBA, Miss Justin Blanco-White, ARIBA, Mr. Peter Cowan, ARIBA, and Mr. Paul Ritter, ARIBA. Right: Miss Justin Blanco-White, Professor Gardner-Medwin and Mr. Paul Ritter (standing)

Architects were consequently a very important and powerful group. As with artists, their work could be accepted or rejected by the layman, but not monitored. By contrast with artists they were faceless and anonymous; contractors, builders and the time lapse between planning and execution came between the architect and the public.

One conclusion drawn was that without long-term political change the architect could not fulfil his function properly.

New BASA Executive

Before the conference dispersed elections were held to appoint the BASA Executive for the forthcoming year. The results were J. Tempest (Leeds), president; C. Sayer (Northern Polytechnic), honorary secretary; W. G. Argyle (Leicester), assistant honorary secretary; C. Musson (ex Cardiff), treasurer; R. Mace, editor; W. Thomas (Bartlett), publicity officer; K. Edmeades (Northern Polytechnic) and J. Hugo (Durham), ordinary members.

'Oh! These Spanish road surfaces'

News of the Week

Birmingham Overspill Decision

THE GOVERNMENT have been considering the problem of accommodating Birmingham's overspill and have concluded that a combination of measures is necessary to provide a satisfactory solution of the immediate problem, no one type of remedy being sufficient. It has therefore been decided to encourage town expansion schemes under the Town Development Act, 1952, at Daventry, Redditch and Worcester, and to alter the line of the proposed green belt at Wythall on the eastern side of the Alcester-road by joining up some of the existing pockets of development.

The first of these measures could be expected to provide for a maximum total population of, say, 25,000 for Daventry, 60,000 for Redditch and 100,000 for Worcester, and the second would provide an additional 600 acres of new land for development. Mr. Henry Brooke, Minister of Housing and Local Government, has already announced that he is investigating the possibility of building a new town at Dawley in Shropshire.

When these measures are put into effect it may be that other over-crowded areas in the West Midlands conurbation may derive relief from them.

Discussion will now take place between the various government departments and the local authorities concerned about the details of the proposed schemes and where it is appropriate they will be advertised in order that the public may consider them and make representations if desired.

Stevenage Slow Down on Building

STEVENAGE DEVELOPMENT CORPORATION have issued a warning that the Government's curb on public expenditure is likely to affect the industrial expansion of the new town. In addition to the deferment of industrial building, other measures that the Corporation will 'almost certainly' be obliged to take include holding back on the second phase of the town centre development, which provides for doubling the main shopping district of Stevenage, and the postponement of civil engineering contracts which do not affect housing production.

The Corporation have made it clear that they do not propose to reduce the number of houses to be built. Some 1,800 are now under construction and 9,864 have been completed. Nor will any work that has been started be stopped. The Corporation state that in about a month's time they will be able to make a more positive announcement about their future building programme.

Building Society Interest Rates

THE POSSIBILITY of a further increase in interest rates, in addition to the half per cent increase to 6½ per cent that building societies will bring into operation on October 1, is hinted at by the Building Societies Association in the August issue of its publication 'Building Society Affairs.' After explaining the reasons why the October increase is necessary the Association states:

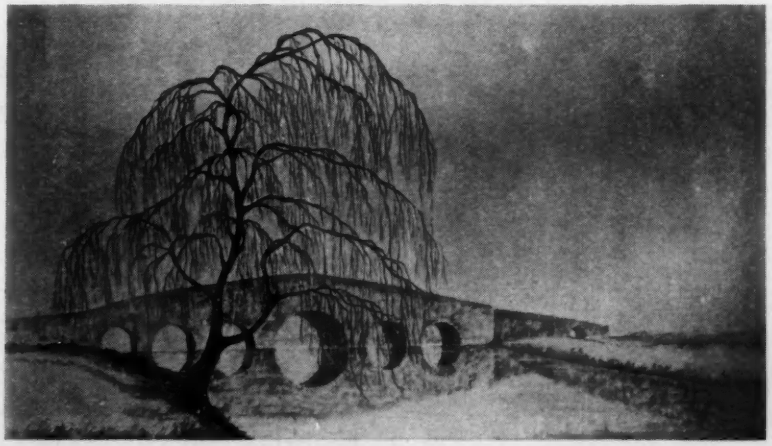
'Now the Chancellor of the Exchequer has announced new measures to deal with an over-strained economy and one of these has been a dramatic increase in the Bank rate. This is not, of course, the first occasion on which building societies have had to contend with a similar situation, because the Bank rate stood at 7 per cent from September, 1957, to March, 1958. Most societies successfully "weathered" this period without increasing their rates and the Council hopes that a further rise can be avoided this time. Whether this hope can be fulfilled depends upon how quickly the economy responds to the stringent remedies which the Chancellor has applied.

'We must again emphasise that the key factor so far as building societies are concerned is the rate which they must pay to their investors to compete successfully with other bodies (such as the National Savings Committee, local authorities and finance companies) which are eagerly seeking the savings of the public. If a high general level of interest rates obtains in the country for a lengthy period, the societies will be obliged to reconsider their position.'

'Their Name Liveth'

NOTHING could be calculated to bring home to the relatives and fellow countrymen of those who gave their lives in the two World Wars the debt that is owed to the work of the Commonwealth War Graves Commission more than the sight, during a recent holiday abroad, of an utterly neglected and seemingly forgotten German war cemetery in northern France, that seemed to breathe the spirit of desolation and despair. By contrast, the Commonwealth war graves, the majority of which are of United Kingdom and Canadian servicemen, in the Netherlands and Germany, which are illustrated and described in a recent addition to the

MURAL AT THE INSTITUTE OF HORTICULTURE, PERSHORE.—*The old bridge over the Avon at Pershore is the subject of three murals executed at the Institute by Mrs. Muriel Poole, ARCA, LRAM, of Farnham, Surrey. This mural, which is in the main entrance hall, is in oils, but another is an abstract design carved in a plastered panel coloured with Cementone. The third expresses the growth of plant life*



Commission's series of publications under the title of 'Their Name Liveth' (Vol. IV, Part 3), are always perfectly tended, and frequently achieve a striking degree of restfulness and beauty.

In an introduction, Capt. B. H. Liddell Hart points out that the Commonwealth war cemeteries in the Netherlands and north-west Germany form, in their location, an engraved pattern of the successive stages and varying thrusts of the advance to victory. 'They represent the toll-gates on the road to liberation . . . here lie the men who paid the toll.' The cemeteries themselves, he adds, leave an indelible impression on those who visit them, to which, it may be added, thanks are due to the architects, artists, administrators and gardeners who designed and maintain them. The book is obtainable from the Commonwealth War Graves Commission, Wooburn House, Wooburn Green, High Wycombe, Bucks, price 5s. 6d. inclusive of postage.

* * *

IN ADDITION to the volume referred to above, Part I, Vol. V in the series has now been published. This is devoted to cemeteries and memorials in Italy and Greece and includes illustrations of the Athens Memorial, which was unveiled by the Duke of Gloucester on May 10 last. The introduction is by Sir Compton Mackenzie. The price, 5s. 7d., inclusive of postage.

Appointments

MR. GEORGE L. EDWARDS, ARIBA, senior architect on educational work, Monmouthshire county council, has been appointed county architect and planning officer, Radnorshire county council.

MR. F. BROCK, ARIBA, has been appointed city architect at Hereford.

MR. ERIC W. STANLEY, ARIBA, has been appointed deputy city architect at Leeds, to succeed MR. P. B. HASWELL, FRIBA, who is retiring.

MR. C. C. GIMINGHAM, ARIBA, deputy county planning officer, Cambridge, has been appointed to a similar post with Buckinghamshire county council.

MR. A. M. GREEN, deputy city engineer at Peterborough, has been appointed city engineer at Lancaster.

MR. O. C. ANDERSON, deputy borough surveyor at Nelson for four years, has been appointed deputy city engineer and deputy water engineer at Peterborough.

A Hundred Years Ago

From The Builder of Sept. 7, 1861

LONDON'S RIVER.—Talk of the lungs of London! Lincoln's-inn-fields, the Temple Gardens, and the numerous squares; these are so dominated, and with reason: they are *quantum valeant* reserves for volumes of air less contaminated by sewage, and the countless exhaustions of the vital and ethereal principle; but what signifies all our losses and spaces, when contrasted with the majestic expanse stretching from Westminster to London Bridge? What an extent have we here? and from the slimy margins of the flood there may be reserved, without prejudice to the natural waterway, more than all the squares and open spaces of London can now make up, even inclusive of the graveyards. QUONDAM.

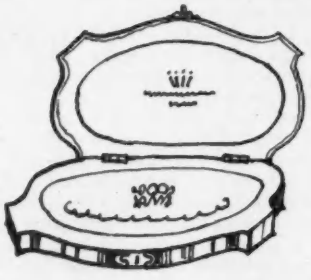
More Everyday Things

58. Peep Behind the Scenes

BY ARTHUR W. KENYON, CBE, FRIBA

MY VISIT to the wine cellars had whetted my curiosity. A lot more goes on behind Regent-street than Regent-street knows, and when, shortly afterwards, I wanted a jewel case specially made, I set out once more to penetrate the façade. I was not really so naïve as to think that the splendid jewellery establishment I first tried would take any interest in either my jewels or the case I wanted made to contain them, but I thought it as good a place as any to start my search. I had never before taken the trouble to find out how the small elegances which grace the display of fabulous jewels are actually produced, but I knew very well that somewhere behind the glittering façades there must be craftsmen at work, and now I wanted to run one to earth.

I will cut out the preliminary and quite fruitless inquiries made in the expensive



hush of jewelled halls, and go straight to the dark, winding staircase which I eventually found by quite other means and which led me to my prey. Whenever you see a gracious display and elegant façade, be sure that somewhere behind or below or up some rickety stairs, there is a network of little rooms with workbenches with nameless men and women who have little but their hands and skill to aid them, contriving to make the whole thing possible.

My rickety wooden staircase took me up two flights to a door leading into a cluttered room where I found an old craftsman in a white apron and steel spectacles sitting at a work-worn bench. He seemed to see no problem in my requirements. The almost insuperable difficulties envisaged in the thick-carpeted showrooms behind the Regency façade seemed to dissolve into nothingness in the Dickensian atmosphere of the second-floor-back workshop. Even when we came to the tricky business of delivery rates, all remained calm. Would I call Tuesday or Wednesday? As simple as that.

I spoke to an elderly lady sitting on a stool at a bench across the room, surrounded by glue pots and little wooden boxes which she was covering with red leather to make into ring cases. She seemed shy and I felt I was being inquisitive in asking her about her work, but she answered my inquiries very sweetly and told me that the boxes were made by the gentleman over there. The gentleman over there had a cast iron machine fixed to a bench which seemed to be capable of gouging out wood to any shape required. I would have liked to inspect this more closely, but I felt I was intruding into a very private world, although they were all much too polite to suggest it.

The gentleman who had dealt with me first told me that the last of the family who had founded the business had died only recently: he himself was the secretary of the firm and had worked there for 56 years. I climbed the rickety stairs again on Wednesday to collect my velvet-lined, satin-backed, leather-covered, neatly fitting case from my friend in the white apron. The case was made just as we had arranged; the day was Wednesday, just as we had said; the price to be paid was just what he had quoted. If I seemed surprised, I am sure he did not know why, and I came away with the strange feeling that he had never been down those rickety stairs into Regent-street. A pity! for I would dearly like to introduce my gentleman in the apron to the gentleman in the striped trousers who sells the precious jewels in their beautiful cases across the way. There are things they should know about each other.

Coming Events

FRIDAY, SEPTEMBER 8

TOWN PLANNING INSTITUTE.—1961 Summer School. Reading University (now in progress until Sept. 13; overseas section from 12-16th).

TUESDAY, SEPTEMBER 12

CAMBERWELL BC.—Exhibition: 'New Patterns for Old Boroughs.' South London Art Gallery, Peckham-rd., SE5 (until Sept. 30).

LONDON BUILDERS' FOREMEN'S ASSOCIATION.—Quarterly general meeting. Caxton Hall, Westminster, SW1. 6.30 p.m.

FRIDAY, SEPTEMBER 15

JUNIOR LIAISON COMMITTEE OF ARCHITECTS, QUANTITY SURVEYORS & BUILDERS.—Week-end conference on 'Building in 20 Years' Time.' Downing College, Cambridge. 8 p.m. (continuing until 2.30 p.m. on Sunday, September 17).

INCORPORATED INSTITUTE OF BRITISH DECORATORS AND INTERIOR DESIGNERS.—President's 'At Home.' Palace Hotel, Birkdale, Southport, Lancs. 4 p.m.

INSTITUTE OF ADVANCED ARCHITECTURAL STUDIES—Course on: 'Design Opportunities in Timber.' Micklegate, York 5 p.m. (until Sept. 19).

SOCIETY OF ARCHITECTURAL HISTORIANS OF GT. BRITAIN.—Annual conference. Edinburgh. 6.15 p.m. (until Sept. 17).

Increase in Building Materials Index

THE BOARD OF TRADE index of industrial production gives a provisional figure of 126 for bricks and cement etc. in June 1961, compared with 120 in May and 113 in June last year. The figure is based on an average in 1954 of 100.

The New 'Banister Fletcher'

17th Edition 'A Splendid Achievement'

IN A FOREWORD to this new and revised* edition of 'Banister Fletcher,' Sir William Holford, FRIBA, and Lord Birkett, Chairman of the Court of the University of London, record that under the terms of the will of Sir Banister, who died in 1953, the RIBA and the University of London became the joint beneficiaries of a trust fund, of which one of the principal assets is the copyright in 'A History of Architecture on the Comparative Method.' They came to the conclusion that the time had arrived for a major revision of the text of this work, which had undergone little change in essentials since the publication of the ninth edition in 1931. 'They were fortunate in securing the services of Professor R. A. Cordingley, Professor of Architecture in the University of Manchester, as general editor, and they take this opportunity of expressing their gratitude to him for the manner in which he has carried out his arduous task.' The transfer of the work to the Athlone Press is in compliance with the University policy of using the facilities of its own publishing organisation for important works and is no reflection on Messrs. B. T. Batsford Ltd., the former publishers, to whom tribute is paid for their 'long and outstandingly successful management of the book.'

Some Changes in Format

The superficial changes in the work are soon noted. The formal designs in incised gilt on cover and spine have gone; repetitive groups of small perspective drawings on the end papers, representing the architecture of different countries, are replaced by geometrical drawings of some of the Classical Orders; the Tree of Architecture, which attempted to show (none too convincingly) the main growth or evolution of the various styles, has disappeared; and the lists of names of leading nineteenth- and twentieth-century British architects have been dropped, together with several of the quotations from the poets—with which Sir Banister liked to enliven his text. These are no great losses. The changes and additions that matter are substantial and Professor Cordingley records them in some detail in his preface. There is no space to set them forth here, but it may be said that they vary in degree and character in the different chapters and are generally due to (a) new knowledge of the past resulting from archæological discoveries and historical research, and (b) a fresh outlook on modern and contemporary architecture.

In his formidable task of revision Professor Cordingley has had the assistance of several specialists. Mr. Cecil Stewart has dealt with Early Christian, Byzantine, Romanesque in Europe, Italian, French and German Romanesque; Mr. Michael Beasley with Belgian and Dutch Gothic and Belgian and Dutch Renaissance; Mr. Frank Jenkins with Architecture in South Africa, Australia and New Zealand and of the Americas; Mr. John Terry with Architecture in India and Pakistan; Mr. Howard Kelly with Chinese Architecture; Mr. William Sherrington with Japanese Architecture; and Mr. Martin Briggs with Muslim Architecture. For the detailed revision of the remainder of the text and the general plan of the edition Professor Cordingley has been wholly responsible. He acknowledges generous help and advice from many quarters.

Comparative Method Preserved

Professor Cordingley has carefully preserved Sir Banister's analytical and comparative method throughout the book; indeed, he has gone one better than the author himself in applying it to the chapters dealing with architecture after 1830, which are among the book's most notable improvements. The chapters on '19th and 20th Century Architecture in Great Britain' and on '19th and 20th Century Architecture in Continental Europe' are particularly well done. The chief weakness of the old 'Banister Fletcher'—a lack of sympathy for the trend of contemporary architecture—has been handsomely made good.

'In the course of the revision,' writes Professor Cordingley, 'it became abundantly clear what a tremendous achievement the book represented. The fruit of a professional lifetime, it had built up to massive proportions over the years. Even so, the former total of 1,126 pages has now risen to 1,390, and the illustrations from 3,232 to 3,611.' The excellent line diagrams of famous buildings and their details have been almost wholly retained, though some have undergone amendment; while a large number of new diagrams and maps have been included. The photographic illustrations, too, have been revised and very considerably increased.

In turning over the pages of this remarkable book one is occasionally struck by some oddity or slip. For instance, a few examples of Gothic Revival Churches are grouped under the heading 'English Renaissance.' The 'Morning Post' building, although altered and in a different ownership, has not been demolished, as stated on page 1047. The London Underground Railway was electrified not in 1890 but in 1903 (p. 985). The statement on page 983 that 'half-timber was revived in the influential work of Norman Shaw' might have been qualified by a reference to the fact that it was entirely sham. But these are mere trivialities. A more serious matter is the almost complete absence of plans in the chapters dealing with nineteenth-century and contemporary work. (Only Coventry Cathedral has one.) This is something for consideration in the next edition.

It should be added that the book is now printed throughout on art paper and the quality of the production is admirable. With all the revisions and additions it still bears the unmistakable stamp of 'Banister Fletcher.' Professor Cordingley is to be cordially congratulated on a splendid achievement.

G. J. HOWLING.

* A History of Architecture on the Comparative Method. By Banister Fletcher. Seventeenth Edition. Revised by R. A. Cordingley, Professor of Architecture in the University of Manchester. (University of London. The Athlone Press.) Price 84s. net.

The late Sir Banister Fletcher

Architecture in the Raw

Justice Not Seen in TV Play

WE WERE TOO QUICK in complaining (see 'Notes' last week) that architects too seldom make the television screen. In the unconsidered trifle 'Wet Fish' which BBC Television offered to viewers on Sunday night, a picture was sketched of a North Country architect's office which can hardly fail to colour lay opinion for long enough to come. Here they were, the go-getting, ambitious architect; the gormless girl assistant who, given her first job to re-design the fishshop, signs shoals of variation orders during her principal's unexplained absences in Paris, all at the suggestion of a conscience-less builder and his saturnine foreman; the fishmonger-client whose dreams of a new shop are swallowed up in the architect's feverish anxiety to inch into a big development scheme. Perhaps there are architects who advise their young staff that you can always get the builder you want by the simple method of rigging the invitations to tender; there may be builders who deliberately mislead the inexperienced assistant, but they are the exceptions, even if the author, Mr. John Arden claims that such offices are known to him. But no office, let alone one run by as shrewd a principal, would tolerate for even half the play's running time the presence in the office of the Svengali-like European character who mixes interminable telephone calls and speculation in property with a little mild seduction.

Only some good acting saved this play from tedium, but it was at the expense of etching into the viewer's mind a quite false picture of a corrupt and inefficient profession and industry.

Czechoslovak Mechanisation in Building

Progress Linked to Increasing Industrialisation

BY BERNARD ORNA

THE CZECHOSLOVAK building industry faces the task of providing 482,000 new flats in the period 1961-5, as well as 37 new hospitals and a good many schools, social centres, factories, agricultural facilities and so on. The industry serves a population of about 13½m. and its resources are correspondingly small in scale as compared with Britain's. How does it face its task?

In Czechoslovakia, as elsewhere of course, importance is attached to the development of mechanisation in construction work. This I found to be the case when, in the course of a visit to Prague, I was able to speak with a number of technicians of the Research Institute for the Building Industry: Messrs. Vanek, Matejka, Marecek and Stribrny.

From what they said it seems that mechanisation is making considerable headway and that this is helped by the overall co-ordination possible with a unified industry. But progress is to be associated also with two other factors: the planning for quite large scale building programmes that is possible, and is under way, and the advance in industrialisation of building to serve the quicker completion of these programmes, i.e. the increased use of prefabrication and dry building techniques.

Pattern of Development

The following are some of the features of the pattern of development. From 1948, when the building industry was nationalised, the use of machinery increased steadily. As an example, in the years 1949-1952 the annual yield from all machinery rose nearly 2½ times. Between 1948 and 1953, thanks in part to the stepping up of mechanisation, productivity rose 52 per cent; purchases of heavy equipment in 1949-51 totalled many millions of pounds. From 1952-3 onwards, incidentally, purchases and home manufacture of smaller machines began to expand. Foreign sources of machinery have included the USSR (concrete mixers, scrapers, graders, and mobile cranes) and Britain, e.g. equipment by Aveling-Barford, Bray, Muir-Hill and others. Home manufacture grew with the opening of new factories, but the types of machinery remained relatively limited; among them were 'Wolf' tower cranes, produced under licence.

The buying and manufacture of the big machines initially reflected an early concentration on projects such as heavy engineering works and power stations. With more attention being paid to domestic housing, and from 1955 onwards more specifically, consideration was given to complexity in the building industry. The use of machines in traditional building operations was studied, then the need to link mechanisation and industrialisation of building, and next, how standardisation of equipment might be effected.

A portal crane with two 5-ton lifting units

Consideration of the use of machinery in traditional building, still about 50 per cent of the total, led to developments such as some use of palletisation of clay products—and while the use of bricks diminishes the lessons learned in brick handling may be relevant where larger 'units' are involved. Plastering machines have been perfected, since they have a useful role to play until techniques of dry building finally predominate.

Concrete mixers, mobile mortar delivery installations, conveyor belting, and power shovels are among other forms of equipment which have received attention. On large sites central concrete mixing plants with a radial delivery are established, but studies are being made of the economics of using ready-made concrete carried by lorry-mounted mixers (and of the relation of this method to site peculiarities). Mobile, on-site conveyor

Left: Lorry-mounted mechanical shovel of 0.35 cu. metre capacity. Right: Hydraulic shovel loader

belting delivery systems are now prevalent, and there is also some use of pneumatic piped supplies—piston-mechanical systems are not favoured, and hydraulic systems have been found too expensive.

My informants considered that good progress could be claimed for the perfection and use of pre-stressing equipment with the introduction of automatic systems; as one example, they quoted a Czechoslovak-designed, continuous tank-wall prestressing machine.

Industrialisation has meant preparing more and more building components in advance, in factories, and assembling them on site with appropriate mechanical aids. This trend led to the introduction of portal cranes from 1954 onwards, but

Pre-stressing 'merry-go-round' for circular tank walls. It is adaptable to all diameters and heights of wall. Speed of work: 1.25 m/sec. Prestressing force: 2,500 Kg. (regulable from 0-2,500 Kg. in one run while in use)

these are not so much favoured now because on average so many sites are irregular, and portals themselves are not quickly assembled, dismantled and moved. Tower cranes have been coming into increasing use, therefore, and new mobile types, of tubular lattice construction, are now being manufactured for the Czechoslovak building industry. These cranes can be set up in one day and dismantled in one day and site-to-site transport costs no more than 500 Kcs (£25) on average. The larger type has a reach of 25m. and 80 ton/m. capacity, the smaller a reach of 20m. and 40 ton/m. capacity.

On the question of powering, I was told that in the period 1955-1960 there had been a faster introduction of diesel than of electric machinery, but that in the period 1961-65 the balance was to be redressed for, ultimately, electricity should prove cheaper in respect of supply and of the actual maintenance of equipment.

As a contribution to the economic use of machines local planning offices, responsible for housing schemes, chart their use not for individual sites alone but for various sites jointly, that is over as wide an area as possible and for as far ahead in time as may be possible; thus a regular 'flow' of equipment can be worked out in relation to current building programmes, in the Prague city area for instance. This is made possible by the close links existing among different branches of the building industry and by those established between the industry and the planning offices.

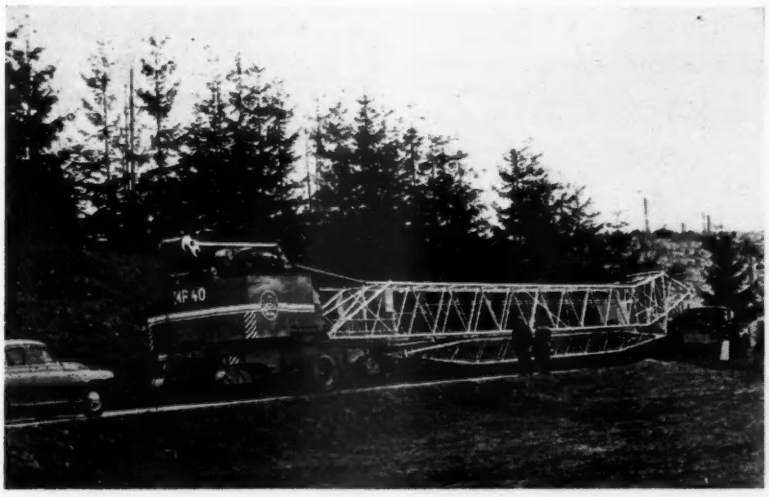
Standardisation

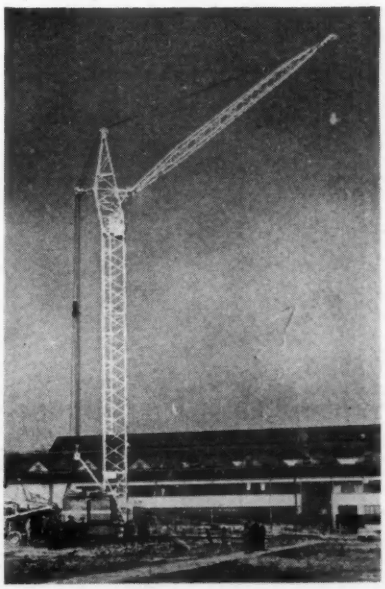
What about standardisation, a point mentioned earlier? Here, it seems, a beginning has been made, but there is much to be done. Some figures were quoted. There are today 40 types of concrete mixer in use and the aim is to reduce them to five, 35 types of crane to be reduced to nine or ten, 18 types of tractor unit to be reduced to six, 60 types of rollers, vibrators, etc. to be reduced to ten, and 75 types of excavator to be reduced to six. Development in this direction will be important for both the building and the manufacturing industries.

A self-propelled hydraulic crane

The pattern of simplification is also one towards which the architects are working in conjunction with the building industry. It is relevant, of course, to the employment of prefabrication techniques. Already there are housing schemes where whole walls, part- or completely-finished inside and out, have been used, and others where ceiling/floor units for whole rooms will be used. In due course Czechoslovak builders may be experimenting with whole, factory-made sections of flats along lines similar to those now being attempted in the Soviet Union. These methods will call for new and powerful handling machines; some will replace machines in use today on most sites, and the character of site work will change still further. The Research Institute is thinking ahead; in factories producing large prefabricated panels some handling of units is now carried out with

Below: A mobile tower crane 'on the road' and (right) the same crane in position. The crane has a capacity of 40 ton/m. with a reach of 20 m.





suction devices, and the possibility of using similar equipment for assembly will be studied.

Today mechanisation in Czechoslovakia gives a yield of about 50 per cent on increases in productivity, building technology 15 per cent, and site organisation, etc., 35 per cent. Furthering the trend to ally efficiency and mechanisation is seen as a key to success in lowering costs, and costs have already been reduced over a number of years. A last set of figures is interesting. A housing 'unit,' i.e., a flat of two rooms, kitchen, bathroom and wc, with central heating system, which cost 105,000 Kcs (£5,250) in 1958, costs 75,000 Kcs (£3,750) in 1961 and in 1965 will cost 55,000 Kcs (£2,750).

Obituary

Eero Saarinen; R. B. Carnegie

THE DEATH took place in Michigan on September 1 of Mr. Eero Saarinen, the Finnish-American architect, at the age of 51. Probably his best, and also best-known-work was the General Motors technical centre at Detroit, but his Trans World Airlines Terminal at Idlewild airport, New York, was also high in quality. In England, he was responsible for the US Embassy in Grosvenor-square, London, which has been heavily criticised not only for the uncompromising stressing of its structural frame but for the fact that it goes far to destroy the scale of the Square. Saarinen was appointed architect for this Embassy following a State Department competition in 1956.

Born in Finland in 1910, son of Eliel Saarinen, the brilliant Finnish architect, Eero emigrated with the family to the United States in 1923, his father having won second prize in the competition for the 'Chicago Tribune' tower. Eero graduated from Yale University in 1934, and travelled in Europe during the next two years on the Charles O. Matcham travel scholarship. He became a naturalised American in 1940.

As a designer, Saarinen's powers were versatile, and he built many churches, housing schemes, opera houses and university buildings, among these last the Chicago law school ranking high. Abroad, apart from the Grosvenor-square Embassy, he designed the US Embassy in Oslo.

R. B. Carnegie, CBE, MIMun.E

MR. R. B. CARNEGIE, CBE, who had been Devon county surveyor since 1946, died at his home near Exeter on September 1. He was awarded the CBE for his work in reconstructing Lynmouth following the flood disaster in 1952.

Grand Canyon Hotel Project

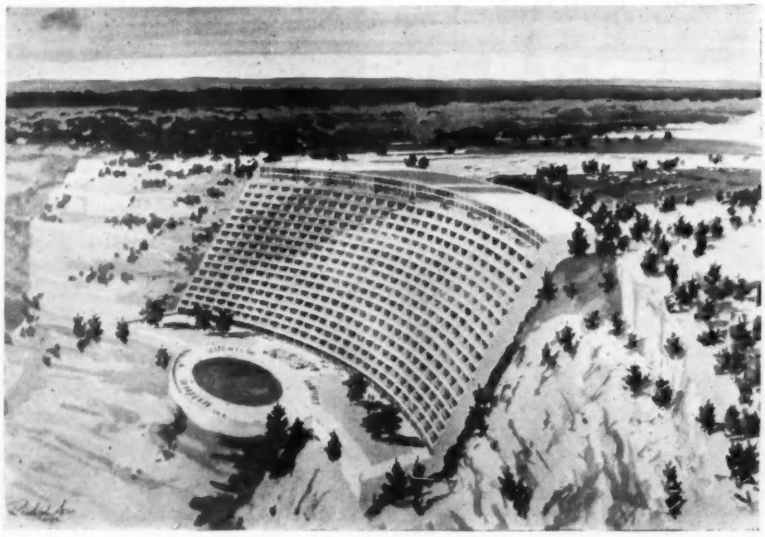
Construction on Cliff Face

FROM A CORRESPONDENT

CONSTRUCTION of a spectacular 600-room hotel of unique design is under consideration on the south rim of the Grand Canyon in Arizona.

Designed by architect William Tabler, the hotel will be an 18-storey structure, all of whose 600 rooms, each with its own terrace, overlook the Grand Canyon which, at that point, is 12 miles wide and nearly a mile deep. Guests would enter the curved building on the top floor, the only one above ground level, and descend to their rooms on lower floors, which stair-step down the Canyon wall to a large swimming pool and sun deck at the base of the building.

Grand Canyon National Park attracts about 1¼m. visitors per year. The 20-acre site on which the proposed hotel will be constructed is owned by the Western Gold and Uranium Co. Incorporated.



Must Building Wait for Railways?

Sir Sidney Littlewood's Criticism at Planning Inquiry

SIR SIDNEY LITTLEWOOD, LMTPI, a former president of the Law Society, told a planning inquiry at Woking, Surrey, on August 30, that public utility and other services, including the railways, are for the benefit of the public and it is for them to keep pace with the population growth that England seems unable to avoid. It is not for the growth to be kept down to suit utility companies and public service facilities. He was appearing for Mrs. D. J. Timmis who was appealing against Woking Council's refusal of a plan to demolish Arborfield, Horsell Park, and build 24 flats and garages.

Sir Sidney said it was an outline application and it referred to an obsolescent, inconvenient house in 1¼ acres. The proposal was for a three-storey block giving a density of 60 rooms to the acre. He referred to the railway's statement that any increase in the travelling population would aggravate a situation which they had no ready means of alleviating.

'I don't know if Dr. Beeching saw that reply before it came out, but I have met it at innumerable planning inquiries. If development depends on the railways saying they can take no more in comfort, development will never take place,' he declared.

In giving his decision on the Hurst Park Racecourse appeal, the Minister of Housing and Local Government had commented that pressure on public services applied everywhere in the Greater London area and was not an effective argument against development.

'Rus in urbe,' Sir Sidney continued, was a very pretty saying, but were they entitled to it? He could see no material change in the area by having flats. They were not proposing offices or shops. In the area suggested by the council for redevelopment were many large houses of much the same type as those in Horsell Park. Here they had a house out of keeping with the times, and nearby was Greylands, which was also the subject of appeal. Were these places to stand idle merely because there were other houses in the district which were not likely to be developed for fifty years? In these days of desperate need that argument did not make sense.

For Woking Council, MR. C. J. BRAITHWAITE said the proposal was clearly at variance with the town map. While the interest in town planning was very heartening, this awakening had been accompanied by some loss of faith in terms of the approved development plan and some suspicion of the local planning authority.

Stephenson Pit Headgear

WOODEN HEADGEAR above the main shaft of Clay Cross (number two) colliery in Derbyshire, erected by George Stephenson 111 years ago, is to be demolished. The colliery has not been worked since 1930.

Association of Municipal Corporations

Annual Meeting and Conference; The Annual Report

THE ASSOCIATION OF MUNICIPAL CORPORATIONS is to hold its 1961 annual meeting at the Leas Cliff Hall, Folkestone, on September 26. The meeting will be followed on the two succeeding days by the annual conference. The first session, on the morning of September 27, will be addressed by the Rt. Hon. Sir David Eccles, MP, and during the afternoon the director-general of the BBC, Mr. Hugh Carlton-Greene, will speak about 'Local Broadcasting and the Local Authority.' On the final day, September 28, Mr. R. E. Griffiths, secretary of the Local Authorities' Conditions of Service Advisory Board, will read a paper on 'Paying the Public Servant,' and, during the final session of the conference, Professor John Griffith, LLM, of the University of London, will talk about 'The Future of Local Government.' Further details and applications for those who wish to attend may be obtained from the Association, at Victoria Station House, Victoria-street, London, SW1.

The Annual Report

THE EIGHTY-FIRST ANNUAL REPORT of the Association of Municipal Corporations, to be presented at the Association's annual meeting at Folkestone on September 26, includes references to action taken on a number of matters concerned with town planning, housing, contracts and transport. The following points are taken from the report:

Advertisements on Shop Fascias.—Increasing evidence has come to the notice of the Town Planning Committee of the repainting of shop fascia-boards and the appearances beside the name of the proprietor of the shop of an advertisement for particular goods. The Committee consider this practice undesirable. It was hoped that new advertisement regulations would have been made before now, but the Minister of Housing and Local Government decided instead to try out a voluntary code of standards prepared by the advertising industry to which the Association found itself unable to be a party.

The attention of the Minister has been drawn to the increase in this kind of advertising and its effect upon 'clutter' and he has again been urged to take power to prohibit it.

Erection of Portable Garages within Curtilage of Dwelling-houses.—During the year covered by this report many members of the Association drew attention to the increasing number of portable car covers or framed temporary structures which were being erected in the front gardens of houses; members complained that in many cases such structures were most unsightly and detrimental to amenity and the Town Planning Committee concluded, after examining the law, that these structures were not subject to control either under planning Acts or under bye-laws.

Representations were made accordingly to the Minister of Housing and Local Government for amending legislation to apply s. 75 of the Highways Act, 1959, to tents, vans, sheds or similar structures standing on land abutting upon a street. This would have the effect of enabling local authorities to require the removal of these structures in appropriate cases.

Car Parking.—Members of the Association continue to report difficulties which they are experiencing in dealing with car parking. One of their problems is the overnight parking of cars in residential areas. The Highways and Transport Committee are considering whether the law needs to be amended so as to enable authorities to construct rear access to premises where parking or garage space is available in rear gardens.

Another proposal under consideration, in connection with the construction of large office blocks or commercial premises, is that developers should be required to make contributions towards the cost incurred by the local authority in providing off-street parking facilities, in lieu of requiring the provision of parking spaces as part of the development.

Planning Appeals.—From time to time the Ministry of Housing and Local Government inform the Association of their concern at the volume of planning appeals from decisions of local planning authorities and discuss ways and means of reducing the volume. The Town Planning Committee accepted an invitation to appoint representatives to a working party set up by the Ministry to consider how information could most conveniently and usefully be obtained by the Ministry as to the volume, nature and trend of planning applications in England and Wales and how they are decided.

Use and Price of Land.—During the past year the Town Planning Committee have been concerned at some length with the problem of the increasing purchase price of land and the increasing scarcity of land suitable for development. After discussions with the Ministry of Housing and Local Government and consideration of memoranda by other bodies on this matter a special sub-committee produced two reports, one dealing with the problem of the purchase price and availability of land and the other with the practical problems of redeveloping central areas.

The Town Planning Committee approved these reports and have submitted them to the Minister with a request for the reintroduction of specific planning grants to aid local authorities in acquiring land for non-remunerative purposes.

Building Contracts.—Negotiations are proceeding in the Joint Tribunal considering the revision of a form of building contract, upon which the Association is represented. The Law Committee reported to the Council that there was a divergence of view on a number of points between the local authority representatives and the builders' representatives and consequently no agreement on a standard form of building contract has yet been reached; it is hoped, however, that the differences will be resolved.

Electrical Installations in Dwellings.—The Housing Committee are concerned at the inconvenience and danger resulting from the variations in the design of power plugs and sockets for electricity. After consultation with the authorities concerned, they have drawn the attention of members of the Association to the desirability of using the standard 30-amp. ring circuit fitted with the standard 13-amp. sockets designed for flat-pin plugs of a fusible type to BS 1363 for AC circuits throughout their own housing and other development schemes and when re-wiring of existing premises is carried out.

The Housing Committee's views have been made known to the Committee on Consumer Protection who have already, in their interim report, recommended that there should be legislation authorising the Home Secretary, in cases where it seems necessary to protect the consumer against undue risk, to make regulations prohibiting the sale of goods of a specified class unless they comply with stated requirements.

It is understood that the Committee are likely to have further discussions on the particular question of the standardisation of plugs and sockets.

Cricket

RIBA Lose to CCC

IN THEIR ANNUAL GAME against the Club Cricket Conference, played at Wimbledon on August 23, the RIBA Cricket Club lost in a high scoring match by eight wickets. Batting first the Architects made a wretched start, losing three wickets cheaply, but Seward and Beeston, and later Beeston and Robinson improved the situation, and the ninth and tenth wickets each produced good stands. Faced with a total of 197, the Conference were never in real difficulty and passed the RIBA total with eight wickets in hand, mainly due to a useful century by J. Misso. Scores:

RIBA

J. G. Batty b. Hill	0
A. E. Morris c. Simmonds b. Thomas	5
C. S. Smith b. Hill	0
J. Seward run out	32
A. Powers l.b.w., b. Thomas	2
W. Beeston b. Misso	63
D. L. Robinson b. Thomas	20
C. A. R. Norton b. Thomas	6
D. Stevens b. Thomas	24
M. Firrell not out	26
A. Gover st. Ager, b. Hill	13
Extras	6
Total	197

Bowling: Thomas, 5 for 82; Hill, 3 for 31; Ricadoni, 0 for 30; Misso, 1 for 22; Davies, 0 for 26.

CCC

B. Wootton b. Gover	20
J. Misso c. Powers, b. Smith	130
R. Ager not out	33
J. Huddleston not out	6
F. Micklethwaite, N. Ricadoni, P. Simmonds, N. Biggs, R. Hill, F. Thomas, C. S. Davies	Did not bat.
Extras	9
Total (for 2 wickets)	198

Bowling: Smith, 1 for 59; Stevens, 0 for 23; Gover, 1 for 58; Firrell, 0 for 13; Robinson, 0 for 36.

Institution of Municipal Engineers

'A Peep into the Future'

MR. J. H. MELVILLE RICHARDS, President of the Institution of Municipal Engineers, speaking at a meeting of the North Western District, at Preston, on September 1, gave his listeners what he called 'a peep into the future' of the Institution's plans and indicated the lines on which the Council had been thinking.

In the past few years he said, there had been a notable growth in the general standing and influence of the Institution. There had been a marked increase in the number of matters of public policy on which the Institution was now consulted by the Government. The Institution's influence the other way round had also been increasing in recent years. This was particularly so when representations had been made recently to Ministers to modify policies so that in the opinion of the Council, a better service could be provided for the general public and also a proper weight placed on the professional position of the municipal engineer as the designer and constructor of the enormous volume of public works undertaken by local authorities.

'This increased influence,' the President declared, 'can be put down in a large measure to the broad public relations policy drawn up by the Council only a few years ago. Another important development has been the improvement in recruitment to the profession as a result of the splendid Careers Booklet in the production of which Mr. Nicholas (of your District) played a leading part. Entrants to the profession are coming in at a slowly increasing rate each year and membership also is increasing steadily, even after allowing for deaths and resignations.'

Continuing, Mr. Richards said that the Convention on 'The Problem of Car Parking,' held last year, had greatly enhanced the prestige of the Institution. The second Convention, on 'Planning for Traffic,' to be held on October 5, promised to be just as successful.

The President added that he had been empowered to take all steps necessary to purchase a new property as Institution headquarters. 'If these negotiations on the particular property, which has been seen by the Council, are successful, then this will dispose of one of the nagging anxieties of the Council for some years past—a suitable, well-placed and worthy headquarters building.'

Better Schools at Lower Cost

A Tribute to CLASP

THE 'THOROUGH AND CONTINUING' search for better value for money in school design and building, especially through the consortium principle, is commended in the eighth report from the Estimates Committee, 1960-61, published recently (HM Stationery Office, price £1). The committee recommends wider publicity for the achievements of the Consortium of Local Authorities Special Programme (CLASP), in which nine local authorities have collaborated to obtain the full value of bulk purchase and prefabrication in a revolutionary system of building, pioneered by Nottinghamshire, whose county architect, as our readers are aware, has devised a building method that overcomes damage by mining subsidence, limits costs, and gives good finishes.

This system, states the committee, produced a variety of internal and external finishes, allowing architects more time to use their imagination on individual plans. The schools are unlikely to incur heavy maintenance charges and are adaptable in design to meet changing needs. Primary schools in Nottinghamshire are taking only six months to build, and are said to be 8 per cent cheaper than schools built in other ways in England and Wales.

Research on school building within the consortium, which included the county councils of Derbyshire, Durham, Glamorgan, the West Riding, Nottinghamshire and Lanarkshire, together with Coventry, Leicester and Gateshead, was carried on to a much greater extent than by other education authorities.

The committee, which also invited the Ministry of Education and the Scottish Education Department to reconsider lighting regulations, which, it is alleged, have sometimes resulted in schools being built with excessive expanses of glass, recommends further scientific investigation into lighting requirements, including a study of the risk of glare or eyestrain and of heat exhaustion due to direct sunlight through glass.

Modern Methods of Traffic Control

Special Exhibition at Science Museum

THE CONTROL of ever faster, ever more voluminous traffic flow by automatic devices, dispensing with slow and unreliable hand operation, is the theme of a small exhibition to be seen at the Science Museum, South Kensington, from September 13 until October 1.

This Modern Traffic Control Exhibition has been generously arranged by the Westinghouse Brake and Signal Co. Ltd. at the Science Museum to coincide with the opening there, by Lord Brabazon of Tara, of the London Conference of the International Commission for Transport Museums. It illustrates, by means of actual equipment and working models, a few of the types of device employed in controlling safely the more rapid flow of traffic on road and on rail.

The public will be able to see at the Science Museum temporary exhibition the 'Westronic' demonstration model which shows how all the points and signals in a particular signalling location are controlled, some distance away, from a central control cabin, which also receives an indication of the condition of the remote points and signals and the position of trains passing through. They will also see the automatic barrier machine and its associated equipment which ensures that road traffic is stopped for the shortest possible time at level crossings. Other railway signalling equipment devised to prevent false operation or damage to it by interference from the traction system will be shown in model form.

Road users visiting the 'Modern Methods of Traffic Control' exhibition at the Science Museum will be interested in the 'Road Traffic Lane Divider,' for varying the width of traffic lanes at the approach to main junctions or cities according to the direction and volume of traffic.

The Science Museum is open on weekdays 10 a.m. to 6 p.m. and from 2.30 p.m. to 6 p.m. on Sundays.

Industrial Estate at Sutton, Surrey

Relocation of Local Industry

WITHIN the next two years work is expected to start on a 30-acre industrial estate at Sutton, Surrey, in order that Sutton and Cheam Council can carry out a programme of resiting industry in the borough. It is expected that about 50 firms—at the moment occupying a total of 8.7 acres in the borough—will eventually be allocated to the estate. These firms, say the council, are tied to the area by economic considerations and for various reasons will require relocation within the borough during the period covered by the plan.

The project, which involves the compulsory purchase of about five acres of land, has been approved by the county council's town planning authority and the county have agreed to submit an amendment to the Surrey development plan to the Minister of Housing and Local Government for his approval.

Supporting the borough's scheme the County Council adds: 'Experience has shown that such industries require on relocation at least twice the land they previously occupied. This is because of improvements in layout and efficiency of operation and to provide enough land for the parking of vehicles off the public highway. At present there is no land in the borough where these industries can be accommodated in conformity with the development plan.'

Surrey County Council's town planning committee, in consultation with the borough council, have approved an amendment to the town map for Metropolitan Surrey—which forms part of the Surrey development plan—to provide for the scheme. The greater part of the land forms part of the corporation's sewage works which is not now needed for that purpose. Other parts are now used as allotments and some is occupied by the War Department as a depot, but the lease is to be terminated shortly. It is expected that part of the land will be available for residential development.

Cement and Concrete Association

Interesting Developments Recorded in 1960

THE CEMENT AND CONCRETE ASSOCIATION, which has been in existence and done notable work in research and the provision of information and technical services for over twenty-five years, has hitherto circulated its annual reports only to its own members in typewritten form; this year in view of the increasing public interest in its work, the report (1960) has been printed and is being given a much wider circulation.

In his introduction to the report Mr. L. O. Russell, the Director-General, states that structural concrete (both reinforced and prestressed) now appears to be established as the normal form of construction for large buildings in this country, though the long-term economy, excellent riding qualities and safety of the concrete road have not yet been sufficiently recognised here. Taking the country as a whole there has been a steady improvement in the utilisation of concrete both technically and architecturally, and there are many interesting new developments in the offing.

Reports follow on Research and Technical Services by the Director, Mr. A. R. Collins, and on Information by Mr. P. Gooding, and there is a section of illustrations followed by a number of appendices and notes on the services of the Association. We take the following extracts from the report, which indicate something of its variety and interest.

Surface Treatment of Concrete

The improvement of the appearance of exposed concrete surfaces has always been a feature of the Association's work and during the year further developments have been made in finishes for use either on pre-cast panels or for concrete cast 'in situ.' Work has continued on the 'aggregate transfer' method, in which the formwork is lined with panels to which the aggregate has been stuck with a cellulose paste. On stripping the formwork the sheets are pulled away from the face of the concrete and the aggregate exposed by washing and brushing. The advantages of this method are that it uses the minimum of aggregate, while producing a uniform distribution of the aggregate on the whole surface. This method has been used recently on buildings and bridge piers and an Advisory Note on the technique has been issued.

Trial samples have been made at the Research Station using the Norwegian 'Naturbetong' technique. This technique is a treatment for 'in situ' concrete using large coarse aggregate. After placing the aggregate in the formwork, mortar is injected round it; when the mortar has reached sufficient strength the formwork is removed and the surface sandblasted to a greater or lesser extent to produce varying textures and designs.

Trials have been made of the process, including the casting of a wall 12 ft. by 8 ft. on which the aggregate was exposed by shot blasting, using a closed circuit equipment fitted with a vacuum head to recover the shot and the material removed from the face of the concrete. From these trials it appears that the time interval between the grouting up of the wall and the exposure of the aggregate is critical, and further tests are necessary to establish if it is possible to use an additive which will retard the setting of the grout, so permitting greater flexibility with this process.

An Advisory Note has been issued on the use of moulded plastic sheets for lining formwork. This method has provided new possibilities for the surface modelling of concrete, since practically any pattern of liner can be produced by a simple vacuum process. If carefully handled, the sheets can be used a large number of times, and one of the great advantages of this method is the ease with which the plastic sheets can be removed from the hardened concrete without the necessity of using mould oils, with the attendant risk of non-uniform staining of the surface.

Fixing and Jointing Precast Facing Slabs

The Association is co-operating with the Building Research Station in a survey of methods of fixing and jointing precast concrete facing slabs. Buildings under construction are inspected periodically and discussed with the architect, engineer, slab manufacturer and building contractor concerned. The results of this survey are to be published when the work has reached an appropriate stage.

Structural Lightweight Concrete

The increasing use of structural lightweight concrete for both insulation and structural purposes has produced a considerable number of inquiries on methods of use and design problems. Investigations have continued into the properties of new lightweight aggregates and their uses in structural members, with the purpose of co-ordinating research at the universities and other research organisations. Recent developments in the use of aerated lightweight concrete were discussed at the RILEM Symposium at Gothenburg at which the Association was represented.

Granolithic Floors

Inquiries on the design and construction of granolithic floor toppings are numerous. The majority of topping failures are caused by cracking or curling up at the corners of bays, and inadequate curing is also largely responsible for failures of dusting and crazing of the wearing surface. Recommendations in the Association's newly published *Specification for granolithic floor toppings laid on in situ concrete* cover all these problems and Association staff have given frequent advice on construction and repair work, with inspection where necessary. A number of inquiries have related to difficulties of design and construction arising from the inclusion of electric heating elements in concrete floors having a concrete wearing surface.

Multi-storey Parking Garages

Multi-storey parking garages are being planned throughout the country by local authorities and private developers, and a number of new garages are under construction. Very little data on this subject has been available in this country and the Association's collection of plans, photographs and publications has been frequently used during the year by a number of local authorities and consulting engineers engaged in this work. Advice has also been given on various draft schemes, both on layout and on structural aspects.

Surface Finishes

Sample slabs have been made for ninety-six different jobs during the year, and their specifications also supplied. An illustration is given of an example of walling produced on request as a prototype for a new building. Association staff have visited twenty-nine sites to advise contractors and train their staff in the special methods used to obtain particular effects in the finishing of concrete, and training in methods of finishing concrete has been given to a number of contractors' operatives at the Research Station.

Permanent Exhibitions

The following permanent demonstrations at the Association's Research Station may be noted:

In situ finishes.—The experimental work on in situ finishes begun this year consists of a series of walls some 8 ft. high, having finishes produced by special formwork or by subsequent treatment of the concrete. The formwork linings have included rough-sawn timber, hard-board, plywood and plastic sheeting. The treatments have included various methods of tooling and shot blasting.

Concrete usage in a small town garden.—A small courtyard between two laboratories has been laid out as a town garden. It was designed by Sylvia Crowe, PPILA, and consists essentially of a paved courtyard with a shallow pool lined with polished concrete tiling and with a fountain sculpture to give vertical interest. The sculpture, designed by Anthony Hollaway, ARCA, is made up of precast concrete units which can be re-arranged in a number of ways. There is also a white precast concrete pergola and a number of white concrete cylindrical flower containers.

Concrete block garage.—A small garage has been built to show how a high standard of appearance can be produced in a type of building which in practice often suffers from poor design. It is built of rendered block walls with roof, floor and approach road of in situ concrete.

The report is issued from 52 Grosvenor Gardens, London, SW1. The Association's services are freely available to all users of cement and concrete.

New Homes Exhibition

Move Away from the Semi-Detached

FROM OUR OWN CORRESPONDENT

PEOPLE seeking new houses should find a good deal to interest them at the New Homes Show, Central Hall, Westminster, which closes tomorrow, September 9. The exhibition, which is open from 10.30 a.m. to 8.30 p.m., comprises over 80 stands occupied by builders, estate agents and developers who, between them, are showing something like 20,000 new houses. The majority, as one would expect, are outside the London area, and it is evident that the further one is prepared to travel the easier it is to find accommodation.

Nearly every exhibitor has either photographs or architectural drawings of the various properties he is offering and there are a number of plans detailing the accommodation and room sizes and also estate layouts. At some stands there are scale models of the properties. From all this it is evident that there is a continuing trend away from the once popular semi-detached, particularly in the more built-up areas where space is limited.

New house purchasers, around the London area at any rate, are beginning to find their choice limited to a terraced house, a one-bedroom flat or a maisonette. As an example of what is being offered, bed-sitting room flats at Notting Hill are priced from £2,500, terraced town houses in South Croydon from £4,850, luxury flats at Beckenham from £4,650 and some terraced houses in a quiet country cul-de-sac at Dunton Green, Kent, from £3,150. There is also a fairly wide selection of maisonettes in localities like Surbiton, Walton-on-Thames and Putney.

Of the actual house designs, brick and timber exteriors seem to be taking over from the brick and cement rendering of the '30s, generally with not unhappy results. Proportions, too, are all the better for being simple, although the problem of where to put the garage has yet to be solved. Too often it looks an unfortunate appendage and, in the main, it seems a better arrangement to accept it as part of the living accommodation.

Popularity of Brick

Although brick may have lost a little ground on the outside of the house, it is becoming increasingly popular as an interior feature. Federated Homes Ltd. show a section of their new 'Devon' house in which the lounge and dining room, with a combined length of 31 ft., are attractively divided by a brick fireplace. Another feature is the full-height windows to both rooms. Devon Lady (Honiton) Ltd., have a fully furnished two-bedroom bungalow built in Western Red Cedar with the roof and walls fully insulated. Surprisingly, although it accommodates four people, it occupies an area of only 24 ft. x 19 ft. and costs £533.

At the other end of the scale, George Wimpey & Co., Ltd., present a show flat from their latest multi-storey development at Kingston-on-Thames. Situated on the Surrey bank of the Thames, the scheme contains 21 two-bedroomed flats, 7 three-bedroomed flats and two pent houses. The flat reproduced at the exhibition has two bedrooms, a living room, a luxury tiled bathroom and a really well designed kitchen.

Another kitchen to attract attention is that of Davis Estates Ltd., who have fitted it out almost completely in aluminium.

A new feature here is the use, on one wall, of coloured foil wallpaper produced by the Star Aluminium Co. Ltd. Other things worth looking for are a comprehensive display of oil-fired central heating exhibited by Shell-Mex, a waste disposal unit fitted below the sink which chops up waste food to allow it to flush away into the drains and a new electric central heating system, called Sterling Axiatherm, specially designed for low cost installation.

Construction in Great Britain

Highest Figure so far Recorded

CONTRACTORS IN GREAT BRITAIN carried out constructional work to the value of £600m. in the second quarter of 1961, according to provisional figures collected by the Ministry of Works. The index of production, which rose by 4 per cent compared with the first quarter, was the highest recorded, and was 8 per cent higher than a year ago.

There was an increase in all types of new work compared with a year ago, after allowing for price increases. Work on industrial building was 19 per cent higher, private miscellaneous building rose by 10 per cent and work for public authorities, excluding housing, by 14 per cent. New housing work rose by 6 per cent compared with last year, with a small increase in work on houses for public authorities and an increase of 9 per cent in private housing.

The provisional figure for the number of operatives employed by contractors in the construction industries in July this year was 1,105,000. This was 15,000 less than in June but 19,000 more than in July last year. The decrease compared with June is probably accounted for by men changing jobs during the holiday period.

CONSTRUCTION IN GREAT BRITAIN

1. Value of Work (in £ million) Done by Contractors (at current prices)

	1960		1961	
	First quarter	Second quarter	First quarter	Second quarter
NEW HOUSING :				
For public authorities	59	62	59	65
For private developers	88	99	103	111
Housing Total	147	161	162	176
OTHER NEW WORK :				
For public authorities	103	107	112	124
For private developers—				
Industrial	75	84	98	102
Miscellaneous...	58	62	65	69
Other New Work Total	236	253	275	295
TOTAL ALL NEW WORK	383	414	437	471
Repair and Maintenance	117	122	127	129
GRAND TOTAL	500	536	564	600

2. Operatives (thousands) Employed by Contractors *

	1960		1961	
	April	July	April	July
New housing	288	294	291	289
Other new work	443	453	483	480
Repair and maintenance	332	339	337	336
TOTAL	1,063	1,086	1,111	1,105

NOTE.—* Insured operatives aged 15 years and over, excluding administrative, technical and clerical workers and self-employed operatives.

3. Index of Production

Changes in the volume of work done are shown in the official index of industrial production. The index numbers for construction (1954=100) are as follows :

1960		1961	
First quarter	Second quarter	First quarter	Second quarter
115	117	121	126

Forestry Commission Estimates

Programme for Next Twenty Years

THE FORESTRY COMMISSION has issued estimates of the potential production of timber from Commission and private woodlands for the next twenty years. These estimates are produced every five years and represent the amount of timber which it is intended to harvest. The figures are however provisional, and will be varied in relation to the state of the market. Whilst this applies to the private woodlands as well as to the Commission forests, the level of the former will also depend on decisions taken by the private owners, so these estimates can be less reliable.

The estimates show that by 1980 the softwood production from the Commission forests will have increased from 17m. hoppus feet to 71.8m. This increase will be spread over all sizes, although the smallest size class (2½-6 in., breast height quarter girth) will remain the largest. This size is mainly used for chipboard, building board, pit props and paper. It is considered that by 1980 the amount of pulp required will have increased by 50 per cent. but lumber only 15 per cent. This is partly accounted for by the fact that an increase in the standard of living causes a similar rise in pulp requirements, but a smaller rise in lumber. There will be a larger volume of spruces produced than any other softwood throughout the period. This is because the Commission's lands are most suited for spruces which also have the largest volume production per acre.

Private Woodlands

In 1960 the private woodlands produced 25.8m. hoppus feet of softwoods and by 1980 will have increased this to 43.8m. The bulk of this will be in the larger sizes. At the present time, therefore, the private woodlands, which produce the larger sizes have the greater output, but by 1980 the Commission which produces the smaller sizes will have increased its production beyond the private figure.

The Forestry Commission production of hardwood is only 2m. hoppus feet compared with 39m. hoppus feet from the private woodlands. It is not expected that the former will increase appreciably over the next twenty years, as the cycle for hardwoods is longer than for softwoods and the Commission's plantations will not have matured, in addition to the fact that on many of the Commission's sites the soil is not good enough for hardwoods. It is anticipated that the production from private woodlands will increase to 48m. hoppus feet.

ESTIMATED POTENTIAL PRODUCTION OF SOFTWOODS

Forestry Commission

Size Category	FY 1965	FY 1970	FY 1975	FY 1980
2½ in.—6 in. ...	14·9	19·7	28·7	37·3
6½ in.—9 in. ...	6·6	10·2	15·2	23·0
9½ in. and over	1·4	3·2	6·2	11·5
TOTAL ...	22·9	33·1	50·1	71·8

Forestry Commission

Species	FY 1965	FY 1970	FY 1975	FY 1980
Pines	6·8	8·7	11·1	14·5
Spruces ...	9·7	15·7	26·4	38·7
Larches ...	4·4	5·9	7·6	9·4
Douglas fir and other ...	2·0	2·8	5·0	9·2
TOTAL ...	22·9	33·1	50·1	71·8

Private Woodlands

Size Category	FY 1960	FY 1970	FY 1980
Thinnings (2½ in.—6 in.)	4·6	6·3	11·4
(over 6 in.) ...	10·6	13·1	15·6
Fellings (All sizes) ...	10·6	14·0	16·8
TOTAL	25·8	33·4	43·8

All figures are in millions of hoppus feet over bark. A forest year ends on September 30.

Heating Exhibition

Visual Presentation of Booklet

AN EXHIBITION entitled 'Central Heating —What it Costs for your Home' is being held at De La Rue House, Regent-street, London, W1, until September 28. It has been organised by Thomas Potterton Ltd. as a visual presentation of their new booklet of the same title.

The booklet describes the principles, advantages and methods of different types of central heating together with installation and running costs. Details are also given of suggested installations for different sized houses. It is stressed that the purpose of the booklet is not to provide a 'do-it-yourself' manual, but to assist in the choice of an installation. The booklet also includes diagrams of various systems and charts of comparative efficiency for the different fuels that may be used for central heating.

The exhibition illustrates this data with animations which raise it from being a mere list of technical information to something which is enjoyable to see as well as being informative. There are various gas and oil fired boilers manufactured by Thomas Potterton and also different types of radiators on show. A panel of working controls enables the visitor to appreciate some of the technicalities involved, while another section stresses the advantages of efficient insulation.

The exhibition is open from 10 a.m. to 6 p.m. on weekdays (Thursdays to 7.30 p.m.) and 9.30 a.m. to 12.30 p.m. on Saturdays. The booklet is available free at the exhibition, at gas board showrooms, or from Thomas Potterton Ltd., 20-30 Buckhold-road, London, SW18.

NEW GRAVEL PLANT AT STAINES.—*Incorporating the latest automatic controls, the new gravel extraction plant, opened in August by the Greenham Sand and Ballast Co. Ltd. at Chertsey-lane, Staines, has a capacity of 80 cu. yd. an hour and includes a completely up to date sand and gravel blending and grading system. The plant was made by Messrs. Frederick Parker Ltd., of Leicester, to a basic design and layout by Mr. G. S. Phimister, technical director of the sand and ballast company. Landscaping and a main colour scheme of pale jade green has been carried out in an attempt to offset the plant's intrusion on the local scene*

Historic Monuments and Buildings

Course in Conservation ; Preservation at Faversham

THE INSTITUTE OF ARCHAEOLOGY at the University of London is establishing, with the aid of the Gulbenkian Foundation, a diploma course in the conservation of historical monuments. It is to be a two-year post-graduate course, combining academic and practical training, designed for architects who want to work on the repair and restoration of old buildings. Since the intention to establish such a course was announced in January, the institute has completed the detailed arrangements and the new course will open in October. Offices participating include the ancient monuments branch of the Ministry of Works, the historic buildings section of the Ministry of Housing and Local Government and the London County Council.

The lectures include: 'English Architecture 597-1540,' by R. Gilyard-Beer, MA; 'English Architecture 1540-1914,' by Sir John Summerson, CBE, ARIBA; 'The Documentary Sources for the History of English Architecture,' by H. M. Colvin, MA; 'The Diagnosis and Treatment of Structural Faults in Buildings,' by S. E. Dykes Bower, MA, FRIBA; and 'The Theory of Architecture, with the Study of Standard Texts from Vitruvius to Viollet le Duc,' by W. A. Eden, MA, FRIBA. The fees for the course are: Registration £3, tuition (per session) £50; and examination £15. Further particulars from The Registrar, The Institute of Archaeology, Gordon-square, London, WC1.

Preservation at Faversham

IN NOVEMBER, 1958, the Faversham Borough Council, after consideration of a report prepared with the assistance of the Society for the Protection of Ancient Buildings, decided to encourage the restoration and repair of the attractive 16th and 17th century buildings in Abbey-street. Since that date a number of properties has been restored with the aid of loans from the borough council and improvement grants.

Some further assistance will shortly become available as the Minister of Works, on the recommendation of the Historic Buildings Council for England, is to make grants of up to £500 a year for three years to help preserve these buildings in one of the main streets of the town. The grants will be made on condition that similar sums will be provided by Faversham BC.

Altogether, 48 properties on the east and west sides of Abbey-street will be covered by the scheme (Nos. 3-34, 80-98, the Phœnix public house and 25 Court-street). They form a group of the best and most interesting buildings in the town. Originally, the majority were timber-framed two-storey houses, although the fronts of many of them were remodelled in the Georgian period.

Grants for individual buildings will be considered by the Historic Buildings Council on the recommendation of Faversham BC. As it is the outsides of the buildings which are of interest, no arrangements are being made for public access.

A grant towards the cost of repairing Arden's House at 80 Abbey-street, which contains the 13th century chapel of the Abbey of Faversham, was made by the Minister of Works in 1957.

Hospital Building Notes

Central Sterile Supply Departments

GUIDANCE ON THE DESIGN of a central sterile supply department at a district general hospital is given in No. 13 of the Ministry of Health Building Notes, published on September 1 (HMSO, price 1s. 6d.).

The object of a central sterilising service is to concentrate the responsibility for, and the work of sterilisation in, one properly equipped and staffed unit. This should reduce work for the nursing staff, allowing them more time to devote to patients. It should minimise the need for sterilising elsewhere in the hospital. The cost of a department is dealt with in a loose-leaf sheet issued with the note as an addendum to Hospital Building Note No. 2, 'The Cost of Hospital Buildings.' For a hospital of the size described the estimated cost of the basic accommodation is put at £36,350.

It is pointed out that a department at a district general hospital may also serve other hospitals in the vicinity. The department described in the note would serve 800 beds or upwards with related diagnostic and treatment facilities for outpatients and casualties.

British Standards

Determination of Air Pollution; Cast Iron Baths

Determination of Air Pollution (BS 1747 : 1961) Part 1: Specifications for Deposit Gauges

WHEN BS 1747 was first published in 1951 it was concerned solely with deposit gauges. Now it is being re-issued in several parts to cover, in addition, apparatus and procedure for the measurement of (1) fine particles (smoke), and (2) gaseous impurities, as well as the solid material (such as grit) which is measured by the deposit gauges specified in Part 1 of the standard.

Experience in the use of deposit gauges during the past ten years has enabled the BSI committee concerned to introduce a number of refinements into the standard but the procedure outlined is substantially unchanged. The standard (price 5s.) deals with the construction, installation and use of deposit gauges. A standard report form and a statement of the analytical determinations to be made are included.

Cast Iron Baths (BS 1189 : 1961)

IN RESPONSE to a request from those responsible for the care of elderly people and invalids, the BSI technical committee which recently revised the British Standard for cast iron baths (BS 1189, price 6s. net) has added a rectangular, shallow bath to the existing range of patterns. It is hoped that in future, this type of bath will become a standard fixture in old people's residential and nursing homes, and in dwellings built specially for the elderly.

The new pattern is as shallow as possible, while allowing for the normal height for fixing a trap under the bath above floor level. Where it is possible to sink the tray below floor level, the rim of the bath can then be brought to only 16 in. above floor level. In this type of bath, it is also possible to have the tapholes in a position allowing cornerwise fixing near the front of the bath—an added convenience for the elderly. When ordered, raised handgrips may also be fitted.

As there is now a growing tendency not to fit overflows to baths, except where by-laws insist on this, the provision of holes for overflow fittings has been made optional.

Among other changes in the standard is the inclusion of advice on filling and cleaning baths.

Housing Progress

Completions During July

THE HOUSING SUMMARY presented to Parliament as a White Paper (Cmnd. 1480. HMSO, price 3d.) jointly by the Minister of Housing and Local Government and the Secretary of State for Scotland, shows that the number of permanent houses completed in Great Britain during July was 23,932 compared with 23,985 in July, 1960. Of these, private builders were responsible for 14,735 and public authorities for 9,197.

In the first seven months of 1961, 168,454 permanent houses were completed compared with 167,919 in the same period of 1960.

Traffic Planning Convention

THE INSTITUTION OF MUNICIPAL ENGINEERS is holding a one-day convention at Central Hall, Westminster, SW1, on October 5, next. The papers to be presented deal with traffic planning in London, the provincial city, the counties and planning road and rail traffic together. There are still places available to attend the convention, for which the fee is £2 10s., except for associate members and students of the institution for whom the fee is £1. Application forms can be obtained from the secretary of the institution at 84 Eccleston-square, London, SW1.

Concrete Mix Proportioning and Control

New Building Research Station Digest

Building Research Station Digest No. 13 (second series), now published by HMSO, price 4d., is given in full below. The Digest, which is Crown Copyright Reserved, is reproduced by kind permission of the Director of Building Research, The Building Research Station, Garston, Herts.

DIGEST 44, issued in 1952, described the elementary principles for making good concrete economically. Whilst these general principles still apply, advances in concrete technology have led to a far more critical approach to the design of concrete mixes intended for structural use, where the requisite strength and durability have to be achieved with maximum economy of materials and labour.

The cost of concrete of any given quality depends both on the materials used and on the care with which they are used. A rich mix gives high strength; but the same strength can be achieved more economically by proportioning the mix properly and seeing that it does not change throughout the job. Mix design and quality control are discussed generally in this Digest; Part II will give details of recommended procedure. Materials for concrete were described in Digest 5.

Specification of Concrete Mixes

The mix proportions for concrete are often specified by rule-of-thumb in 'nominal' proportions such as 1: 2: 4 or 1: 1½: 3 of cement/fine aggregate/coarse aggregate, with little or no consideration for the materials and methods that will be used on the site. This kind of specification, if adopted without further safeguards, has many disadvantages. The resulting mix may not be the most suitable for the purpose: it may be harsh and difficult to compact, or contain more cement than is necessary; the quality of the concrete may not be uniform throughout and in places the strength may be well below that required.

A more realistic approach is to specify a minimum strength for the concrete and —for the given aggregate, conditions of site control etc.—to choose the porportions of cement, fine and coarse aggregate and water accordingly. There is, in fact, a trend away from the specification of nominal mixes and towards the design of mixes on a strength basis, and this is reflected in the provisions of the BS Codes of Practice CP 114 and 115, for the structural use of reinforced and of prestressed concrete, respectively: as the strength required of the concrete increases, specification tends to be in terms of strength and, even when nominal mixes are used as a basis, the actual proportions are often changed considerably after tests on preliminary mixes.

When the concrete is required to comply with CP 114 (or with certain building regulations), a minimum crushing strength is specified for each nominal mix, as in Table I overleaf. These strength values are based on the assumptions that a suitable water/cement ratio and an ordinary Portland cement complying with BS 12 are used. Although the nominal mixes are specified by volume, the cement should be measured by the whole bag, or by weight. It is usual to require that, unless evidence is produced that the intended mix proportions make a satisfactory concrete, preliminary strength tests shall be made with the materials to be used on the job and the proportions shall be adjusted accordingly. Further tests ('work tests') are made on samples of the concrete while the work is in progress. It is permissible for the strength values obtained in the works tests to be somewhat lower than those in the preliminary tests.

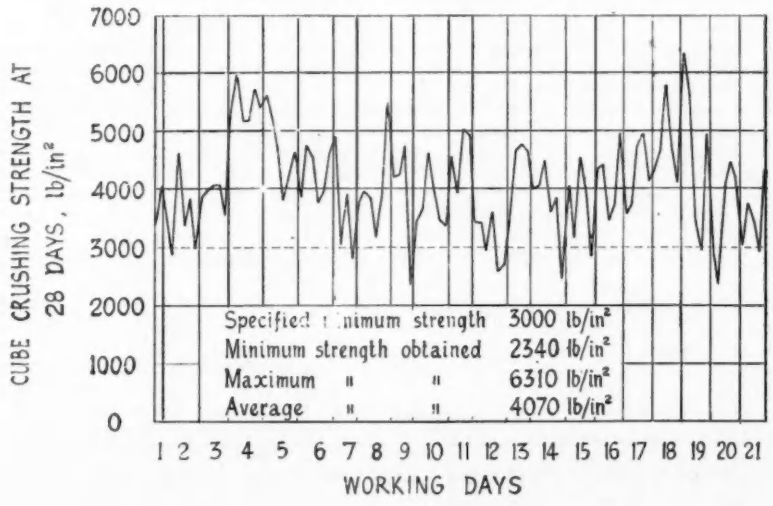
The water/cement ratio, a most important factor governing concrete quality, is not specified for nominal mixes, but it is usually stated that it should be kept as low as possible provided that the mix is workable enough to obtain fully compacted concrete with the means available on the site. The water/cement ratio will be discussed further in Digest 14.

In nominal mixes, the proportions of the volume of fine aggregate to the volume of coarse aggregate are usually in the ratio of 1 to 2, but it is often preferable to vary this ratio to allow for different gradings and sizes of the aggregate. Clause 208 of CP 114 allows this ratio to be varied between the limits of 1 to 1½ and 1 to 3 so as to produce more workable and denser concretes with aggregates of different maximum size and different gradings; thus, a nominal 1: 2: 4 mix could in fact have volumetric proportions between 1: 2.4: 3.6 and 1: 1.5: 4.5, the actual proportions being decided from the preliminary mixes made with the materials to be used on the job.

An alternative to the use of nominal mixes is given in Clause 209 of CP 114, by which 'special concrete mixes' can be designed to have any specified minimum works cube strength between 2,250 lb./in.² and 6,000 lb./in.² at 28 days. A minimum limit is imposed on the cement content, and for ¾ in. maximum sized aggregate the mix must not be leaner than 1: 8.

For prestressed concrete, where concretes of higher strength are required, CP 115 'The structural use of prestressed concrete in buildings' does not permit specification in terms of nominal mixes; it requires concrete mixes to be designed solely in terms of strength, with a cement content between 500 lb. and 900 lb. per cubic yard.

Fig. 1.—Variability of concrete strength on one site



Variability of Concrete on Site

Having specified the strength required and decided on suitable mix proportions for the purpose, it is still necessary to ensure that the standard of strength is maintained consistently throughout the job. Most specifications and Codes of Practice call for periodic sampling of the concrete and the making of cubes for crushing strength tests. Usually, however, this sampling is made at such infrequent intervals that the variations from mix to mix, and even from day to day, are undetected. To investigate the variations that do occur, workers from the Station have visited several sites and taken samples of the concrete at frequent intervals daily over a period of two or three weeks. Cubes were made, and tested at 28 days age. The results

from one site are shown in Fig. 1 ; the variation seen here can be regarded as typical of that occurring on many jobs. Data from this and other sites are analysed in Table 2, which shows clearly the effects of different degrees of control.

It will be seen that the strength of the concrete on a single contract can vary by as much as 4,000 lb./in.^{2} ; on a site with poor control, therefore, much of the concrete produced may have a strength below the specified minimum. In the Station's study, the proportion of samples falling below the specified minimum strength ranged from 0 to 49 per cent, according to the degree of control exercised.

From statistical considerations, it is to be expected that, with a sufficiently large number of tests, *some* proportion of the test results will fall below any specified minimum value, but it is obviously undesirable that this proportion should be too high. It is better, therefore, to decide what proportion is acceptable ; a figure that is often used is 1 result in 100. Where, because of poor control, the results may vary over a wide range, the aim of not more than 1 in 100 falling below the specified minimum can only be achieved either by improving the control or by aiming at a higher 'target' average for all the test results. The last column in Table 2 shows the 'target' averages that would have been needed on the five sites to ensure that only 1 test result in 100 would have failed to reach the specified minimum.

Comparing two of the sites where the same minimum strength was specified, it will be noticed that on site 2, where the control was poor, the 'target' average strength would have been much higher than the average actually attained in the tests, whereas for the well-controlled site 3, it would have been much less than the measured value.

The average strength of concrete can be increased, if necessary, by using either a drier mix or more cement, but both of these methods increase the cost. The alternative means of ensuring the required quality is to adopt quality control methods on the site and this is the only way to obtain the best advantage from designing mixes for a certain strength. Quality control itself costs money, but it brings with it certain advantages, including savings in cement, which will now be discussed.

Advantages of Quality Control

The savings in cement made possible by quality control are shown by Table 3. The three levels of site control considered are typical of practice and the average strengths required have been calculated on the basis of not more than 1 result in 100 falling below the 'minimum' values of 3,000, 4,000 and 5,000 lb./in.^{2} at 28 days. At the lowest level of control it would be virtually impossible to produce concrete having a minimum strength of 4,000 or 5,000 lb./in.^{2} at 28 days; to get these higher strengths, improved control methods are indispensable.

The last three columns of Table 3 show that the saving in cement with improved quality control depends both on the average strength of the concrete and on the level of improvement in control. Improving the site control from 'fair' to 'very good' saves 70 lb. of cement per cubic yard of concrete for a 3,000 lb./in.^{2} mix, but saves 190 lb. of cement per cubic yard for a 5,000 lb./in.^{2} mix. Improving the site control from 'poor' to 'fair' saves 400 lb. of cement per cubic yard of 3,000 lb./in.^{2} concrete. Thus, the initial improvement in site control, which is easiest to achieve in practice, results in the larger saving in cement; also, as the

Table 1

NOMINAL MIXES AND STRENGTH REQUIREMENTS

Concrete made with Portland cement (BS.12) and natural aggregates (BS.882)

*Nominal mix by volume**	*Volume of dry aggregate ft³ per 112 lb cement*		*Minimum cube crushing strength at 28 days lb/in²*	
	Fine	*Coarse*	*Preliminary test*	*Works test*
1 : 1 : 2	1¼	2½	6000	4500
1 : 1½ : 3	1⅞	3¾	5000	3750
1 : 2 : 4	2½	5	4000	3000

* It should be noted that a nominal 1 : 2 : 4 mix is not the same as a 1 : 6 mix by volume using an 'all-in' aggregate. Two volumes of fine aggregate when mixed with 4 volumes of coarse aggregate would in fact produce about 5 volumes of combined or 'all-in' aggregate. The use of an 'all-in' aggregate is not recommended for structural concrete.

Table 2

SUMMARY OF QUALITY CONTROL TESTS AT FIVE CONCRETING SITES

Site No.	*Observed control of concrete on the site*	*Specified minimum 28-day crushing strength*	*28-day strength of cubes tested lb/in²*		*Samples below specified minimum strength*	*'Target' average strength**
		lb/in²	*Average*	*Range*	%	*lb/in²*
1	Volume batching. Little effort to control the quality.	2500	2640	1020—4590	49	6850
2	Weigh-batching. Water content not fully controlled.	3000	4070	2340—6310	12	5700
3	Weigh-batching. Concrete pump in use which required uniform consistence for efficient working, giving good control.	2500	5120	4270—5880	None	3150
4	Weigh-batching. Very good control over water content. Control under supervision of an officer of the Station.	5000	6510	5630—7070	None	6000
5	Weigh-batching. Water content not fully controlled.	3000	4000	1990—5940	7	5250

* The 'target' average strength is the average strength for which only 1 test result in 100 might be expected to fall below the specified minimum.

Table 3

EFFECT OF SITE CONTROL ON CEMENT CONTENT AT DIFFERENT STRENGTHS

Degree of control on the site	*Minimum strength as percentage of average strength*	*Average 28-day strength required for minimum strengths of:*			*Cement content in lb per yd³ of concrete for minimum strengths of:*		
		3000 lb/in²	4000 lb/in²	5000 lb/in²	3000 lb/in²	4000 lb/in²	5000 lb/in²
Very good control, with weigh-batching and constant supervision.	75	4000	5350	6660	530	640	750
Fair control, with weigh-batching.	60	5000	6660	8350	600	750	940
Poor control, with volume batching of aggregates.	40	7500	10 000	12 500	1000	—	—

Table 4

CONVERSION—VOLUME TO WEIGHT PROPORTIONS

Material	*Loose density lb/ft³*	*Proportions by volume*	*Weight of material per ft³ of cement*	*Proportions by weight*
Cement	90	1	90	1
Sand	100	2	200	2·2
Gravel	85	4	340	3·8

required minimum strength is increased, so good control becomes more important and also results in greater savings in cement.

It should be clearly understood that in calculating the results shown in Table 3, the same degree of workability has been assumed throughout. It is sometimes thought that, when mixes are designed and their quality is controlled, they must be mixes of low workability which are difficult to place and compact. This is not so; mixes can just as easily be designed and controlled to have a 4-inch slump as to have a ½-inch slump.

The saving of cement should not be regarded as the sole advantage or even the main advantage of using quality control methods. There are other benefits which may not be immediately apparent and which are difficult to assess economically. A well designed and controlled concrete will be of uniform workability; this should result in the avoidance of porous honeycombed patches (caused by bad batching) and weak patches of laitance (due to addition of too much water). In consequence there will be no need to 'make-good' or to hack out and repair such patches. A good uniform concrete, moreover, should be less permeable and more durable than one that contains weak sections, and this should make for reduced maintenance costs.

The introduction of methods of quality control on a site will increase production costs above those on site where little control is exercised. But where weigh-batching plant is already being used, as it is by an increasing number of contractors, most of the extra costs will be those arising from the employment of a trained supervisor, and from the making and testing of additional concrete control cubes. There is no reason, however, why quality control methods should reduce the output of concrete, and on a well controlled site the production of uniform concrete should proceed more smoothly.

Methods of Specifying Concrete Mixes

Concrete mix proportions can be expressed in terms of volume or weight. It has already been noted that the present trend is towards specifying mixes in terms of minimum strength requirements (usually with a specified minimum cement content) rather than by nominal volume proportions. With this method, the mix proportions are determined and expressed in terms of weight. Usually, the weight ratio of cement to combined aggregate is decided upon and then the fine aggregate content is selected according to its grading and other characteristics of the aggregate. For example, a mix would be described as a 1: 6 by weight containing 40 per cent of sand, and the batch weights calculated from 1: 2.4: 3.6 proportions by weight. The water/cement ratio usually specified is that determined from the trial mix to produce a satisfactory workability and strength.

Where the mix is designed in terms of weight, the materials are measured by weight on site. Where mixes are specified in terms of volume, the cement should be measured by the whole bag, or by weight; the aggregates can be measured by volume, but results will be more uniform if they are measured by the equivalent weight. To obtain the weight proportions from volumetric proportions it is necessary to know the loose *dry* densities of the aggregates, and it is usual to take cement as weighing 90 lb./ft.³, i.e. a 1 cwt. bag contains 1¼ ft.³. An example of converting volume to weight proportions is given in Table 4.

Many aggregates have densities similar to those given in Table 4 and it will be noticed that, with densities of this order, the proportions by weight are not widely different from the proportions by volume; with lightweight or extra heavy aggregates, the difference would be greater.

A further point to be noted is that, whereas a mix of 1: 2: 4 by volume gives a combined volume of about 1: 5 (*see* footnote to Table 1), the equivalent proportions by weight give a 1: 6 mix by weight; this shows that a 1: 6 mix by volume differs considerably from a 1: 6 mix by weight.

Instead of specifying the proportions of cement and aggregates individually, an alternative way of defining a mix is by its cement content in pounds of cement per cubic yard of concrete, as in CP 115; here again it is usual for the water/cement ratio, determined from the trial mix, to be specified. The proportions of fine and coarse aggregate are determined from consideration of their physical characteristics and the required workability of the concrete.

New Construction Technique

TO BE COMPLETED later this year near Hubberston Point for the use of the Milford Haven Conservancy Board's craft is a new jetty and breakwater which employs a new construction technique. Three pontoons of reinforced concrete—prefabricated in the Milford Haven Dock Company's dry dock—have been floated out and sunk in position at the jetty head to form a foundation for the jetty. The pontoons have slots through which concrete piles are driven, pinning the structure to the sea-bed. Each pontoon weighs 1,000 tons, is 100 ft. long by 24 ft. wide and is 16 ft. deep at the foundation. The permanent jetty superstructure consists of prefabricated pillars and beams which are to be sheeted in steel above low water so that the structure forms a breakwater. Consulting engineers, Posford, Pavry & Partners, Westminster; contractors, Peter Lind & Co. Ltd., London.

The Supreme Issue for the Unions

Amalgamation Could Solve the Problems of Demarcation, Growth and Development

FROM A LABOUR CORRESPONDENT

IT SEEMS to have come as a surprise to some (Sir Richard Coppock's swan song pamphlet, published from Federal House, Clapham, SW4, price 6d.) but to those who have listened to the man over the years the response is different. What 'Dick' has written in cold print he has been saying at conferences for a long time —often roaring at his audience in magnificent defiance. Seldom has anyone openly challenged his main thesis. Having crushed the opposition to silence they have resorted to the vote and its enervating finality.

The intellectual bulk and forbidding prestige of Sir Richard has obscured the somewhat flimsy basis of the organisation he built almost single-handed. The NFBTO is not a trades union and its funds are actually derived from a per capita levy on its affiliates. This approximates to one penny per week from each individual trades unionist. It is open to any affiliate to secede with the requisite notice. Each organisation remains free to run its own affairs as it chooses. The only commitment is to observe the rules of the club (the General Rules of the NFBTO) which, by necessity, are couched in the broadest terms.

It has been aptly said that it is not the Federation which controls the unions, but rather that the unions control the federation. Thus a federation meeting can be likened to a gathering of tribal chieftains—each independent but in free co-operation with each other.

The Crucial Issue

It was Coppock's peculiar gift which enabled him to dominate and lead such meetings. Seldom has he been defeated on major questions of policy. Yet even he knew that there were some issues on which unanimity was impossible. These he sidestepped or treated with a superb dose of enigmatic eloquence. On the need for amalgamation, however, he never lowered his flag or dissembled.

This, he grasped from the beginning, was the crucial issue. Nearly every other purely TU question falls into place once given complete unity of the operatives. The problem of finance, the challenge of 100 per cent membership, the inherent conflicts on demarcation—indeed, the whole question of continued growth and development hinges on the fusion of the crafts and trades.

It is extremely simple to engineer a resolution calling for amalgamation at the NFBTO annual conference. This has been done so often that the participants almost appear to be reciting a ritual. The vote—usually a card one—invariably reveals a majority in favour. Yet without unanimity the procedure is abortive.

A somewhat facile explanation of this reluctance on the part of one or two key unions is that certain people would find their status and power reduced. One rough-tongued Northerner once put it that some leaders would rather be small fish in a little pond than big fish in a big pond. Such are human frailties that there is an element of truth in the charge. But it is not the whole story. Take the ASW. Here is a firmly based organisation, viable, well run, and with a team of full time officers of high quality. They feel well able to take care of themselves —and so does the rank and file.

At ASW national conferences motions on general amalgamation have been consistently rejected. Indeed there is now emerging a lunatic fringe which is calling for a policy of 'go it alone.' These gentlemen are not likely to succeed but their very existence indicates a broad middle which envisages no further moves towards complete unity—as yet.

What it really amounts to is that the creation of one single union for building, with one single leadership, can only come by consent. That is, when the members really want it they will get it.

Towards the Millenium

This does not inhibit the convinced amalgamationists from assiduously displaying their wares. And it may seem odd to some that Sir Richard's successor, Mr. Harry Weaver, is an unrepentant amalgamationist. Actually his general industrial outlook is curiously similar to Sir Richard's; progressive, broad and critical. Even his capacity and character are remarkably similar. He has a quick analytical mind and ample courage.

Will he, then, be able to push things along faster towards the millenium? Will the new broom be more efficacious? These questions cannot be answered glibly. His first task is to entrench himself and earn his spurs. This he will undoubtedly accomplish but we may expect to see the nine-man executive coming more into the picture than hitherto. As Mr. George Lowthian said two years ago . . . 'we want to see a bit more democracy in the federation.'

Undoubtedly the basic tenets of craft organisation in building relate to the state of the industry during the 19th and early 20th Centuries. There is now a silent challenge to this through the technical development of the way in which we put together the bits and pieces of a building. Then there are the new materials. It does not require clairvoyance to perceive that we are at the beginning of an explosion in plastics. Again the development of adhesives will probably revolutionise methods of fixing.

This is not to say that the traditional crafts are facing imminent eclipse. But it does place their organisations several degrees out of square to the industry. A rigid adherence to existing structure must therefore lead to struggles between the autonomous unions on 'who fixes what' questions. Some of the larger unions may feel confident of imposing their will on the smaller outfits and certainly it would appear that expediency and pragmatism are often the guiding principles.

In this they are no different from any other form of business. There are few holds barred when it is a question of survival and it is a hard bleak world for those who do not know how to defend themselves. The anomaly, of course, lies in the professed noble aims and ethics of the unions. This is revealed in curious contrast when men strike against their fellows.

Demarcation Disputes

It is sometimes supposed that demarcation quarrels will increase as the lines between the crafts become blurred. But this is not necessarily inevitable. The NFBTO has already in existence a demarcation committee which is functioning with considerable success. It effaces itself and operates with an almost clandestine abhorrence of publicity, but that is not important. The fact is that it works.

What seems to be overlooked in these exercises is that men's minds are occupied with sharing out the work when they could be employed to better advantage. Yet whilst it continues to be possible to accommodate each given situation within the existing structure the urge towards change will be blunted. The very skill and suppleness of mind which the federation officers possess act as a brake on progress.

Sir Richard refers in his pamphlet to the 1959 special conference on new techniques. He directly charges the unions with 'some responsibility' for demarcation disputes and goes on '. . . it is not that they are unaware of the dangers because they were all thoroughly thrashed out at the conference on new techniques held by the federation over two years ago. The position is that there has been almost no development since that conference: no apparent recognition that the problems are serious or urgent.'

This is frankness to the point of brutality. But it would be over optimistic to assume that it will lead to the changes required—at least not next week.

It is, of course, unreasonable to expect dramatic alterations in the unions. Much of their mystique and strength lies in their longevity and it is natural for this to be preserved. They were conceived in struggle and men sacrificed much in their building.

What is worrying the progressives in their ranks is the danger of the various organisations becoming congealed. There is, in a period of rapid technical advance, an obvious need constantly to examine and adapt—not to sink into a torpor of contemplation of navels. If only there were signs of an awareness and the establishment of something like a Working Party, many would be happier.

*** 'Eye to the Future'. Sir Richard Coppock's pamphlet, was the subject of a leader in 'The Builder' of August 4.—Ed.

Concrete Surface Finishes in Sweden

Techniques with Normal and Special Formwork and Surface Treatment

BY ERIK AHNBORG

THE TEXTURE of a concrete surface is somewhat enlivened when the shuttering consists of unplaned redwood match boards. Sometimes the boards are planed to dimensions (planed on one side only) so as to be of uniform thickness. The boards are placed so that their unplaned sides are in contact with the concrete, and this results in a texture which is more even than that resulting from the use of ordinary, unplaned boards. Unplaned boards should not be too rough and loose on the surface because wood fluff will stick to the concrete. The same defect is liable to occur if the formwork is not thoroughly watered before concreting.

A rustic concrete surface is obtained if the shuttering is made of butt-jointed, unplaned square-edged boards. If it is desired to produce a more varied surface texture, then the shuttering is sometimes built with boards differing in thickness and in width. In particular, this type of formwork is frequently used for retaining walls.

To obtain a concrete surface which is smoother than that produced by shuttering made of unplaned boards it is usual to employ planed redwood match boards. The supporting structure of the formwork is erected with great care to prevent deformations of the formwork during the placing of concrete. Treatment with mould oil protects the formwork timber and facilitates its separation from the concrete when the formwork is removed. When the shuttering is made of planed boards the concrete surface is liable to bear imprints of knots or to exhibit discoloured patches caused by those areas of the boards which are particularly rich in resinous substances. This effect—which enlivens the surface texture—is sometimes intentional. If desired such imprints and patches can be avoided by using highest-grade timber.

A method of formwork construction, which can also at times give beautiful results, is the use of form panels, that is, planed match boards, about 1m. long, fitted together at the factory to form panels about 0.5m. wide. To produce attractive concrete surfaces the form panels should not be used too many times.

Instead of form panels built with smooth match boards it is now usual to employ plywood sheets which are most frequently provided with a plastic-coated surface. To solve the problem presented by the joints between the plywood sheets, thin wooden battens are sometimes fixed between them. The resulting markings clearly emphasise the joints on the external concrete surface.

Special Formwork

In Sweden, when smooth concrete surfaces are required, the shuttering is at times made of oil-tempered wood fibre-board panels. Before the concrete is placed, the formwork is treated with mould oil. Smooth concrete surfaces have perhaps a rather dead look, and it is therefore sometimes considered that holes in concrete due to air bubbles, and also small casting defects, are advantageous to appearance. Oil-tempered wood fibre-boards are available in large sizes and the problem of joints is therefore often easy to solve.

For the erection of large buildings and other structures, where the same formwork can be used many times, it may be worth while to construct steel shuttering. It is built up with steel sheets, 3 to 5 mm. in thickness, welded together. New steel formwork should be coated with a shellac solution before use. Before the concrete is placed the formwork is treated with mould oil, e.g. light machine oil. Smooth concrete surfaces can also be obtained by using other shuttering materials, e.g. rubber mats and asbestos cement sheets. They are attached as linings to the inside of the formwork sheathed with smooth match boards. Sheet aluminium or glass-fibre-based plastic laminates are likewise occasionally employed.

Use of Sliding Forms

The use of sliding forms in Sweden is common in the erection of structures whose horizontal section does not change with the height, such as tanks and silos. Such a form is about 1.5m. in height and is raised by means of vertical climbers as concreting proceeds. To avoid construction joints the concreting must be carried out without interruption. Sliding forms are usually made of timber.

If the patterned side of a hardwood fibre-board used for shuttering is placed in contact with the concrete, then the appearance of the concrete surface will be somewhat livelier. However, it has often proved difficult to obtain a uniform pattern over the whole concrete surface. Nevertheless, relatively satisfactory results have been obtained by thoroughly oiling the wood fibre-boards before the concrete is placed. Internal lining of the formwork with burlap has produced more uniform patterns on the concrete surface than the use of patterned wood fibre-boards. On the other hand, there is a certain risk that the concrete surface will be 'fluffy' because fine burlap fibres stick fast in the concrete.

Good results have been obtained by lining the inside of the formwork with such materials as fluted rubber mats, corrugated sheets of aluminium or asbestos cement. Attractive effects have also been achieved by the use of battens made of redwood, teak, or other appropriate timbers, which are fastened to the inside of the formwork. Sliding forms have sometimes been profiled to produce a pattern extending in a vertical direction. Experience has shown that such patterns tend to conceal construction joints and casting defects, if any.

Surface Treatments

A common method of treating newly-cast concrete is washing out. This method can be applied only to factory-made concrete units which are cast so that the exterior surface faces upwards in the mould. As early as a couple of hours after casting the concrete is washed with a fine jet of water, sometimes with a so-called 'fog sprayer.' During washing, the concrete panel should be raised at an angle of 45° so that the surface material may easily be washed off.

The concrete is usually washed so as to expose the aggregate to a depth which corresponds to about one-third of the smallest particle size of coarse aggregate. The thin cement layer which covers the concrete surface after washing is removed by treatment with hydrochloric acid. The appearance of exposed aggregate surfaces produced by washing can be widely varied by using aggregates which originate from different rocks as well as by varying the type of cement. The inside of the shuttering is frequently coated with some retarder, i.e. an agent which reduces the rate of hardening of the concrete, particularly in the manufacture of precast concrete units. If this be done, the concrete can be washed, or subjected to some other surface treatment, as late as 1 to 2 days after casting.

A concrete surface which is similar to that produced by washing can be obtained by brushing. The tool used for this treatment is an ordinary fibre brush or a steel brush. Motor-operated steel brushes are also employed. The concrete units to be treated by brushing are cast with the exterior surface facing upwards. Brushing can be performed 5 to 7 hours after casting. The coarse aggregate used in the concrete which is to be submitted to brushing usually ranges from 4 to 16 mm. in particle size.

A newly-cast concrete surface can also be treated by the aid of a float covered with felt, which absorbs the laitance and the finest aggregate particles on the surface. After this treatment, during which the float is washed several times, the coarse particles of aggregate are exposed on the surface. The treatment with felt-covered float should preferably be carried out as early as 2 to 3 hours after casting. The particle size of aggregate in this case usually ranges from 2 to 4 mm. The concrete surface is ordinarily washed with acid about 1 day after this treatment.

If a coarse surface texture is desired, then use is sometimes made of the sand-layer method of aggregate transfer. In this method, the concrete is cast on a layer of fine sand, into which selected coarse aggregate is pressed by hand. The particles of aggregate are placed as closely together as possible. The concrete is never vibrated in this case, since vibration would disturb the pattern of coarse aggregate and the sand on the bottom of the

mould would be mixed with concrete. After one day the mould is dismantled and the sand is washed or brushed away. The particles of coarse aggregate are pressed into the sand to a depth which varies from about one-half to one-quarter of their size to ensure adequate bond between the aggregate and the concrete. The coarse aggregate used ranges from 32 to 64 mm. in particle size.

The most common method of concrete surface treatment is washing with hydrochloric acid. This method is applied to newly hardened concrete as well as to old concrete surfaces. Treatment with acid can be performed as early as one day after casting. Such treatment removes the thin cement layer and the finest aggregate. It is recommended that the effect of treatment with acid should previously be tested on a concrete slab made in the same way as the concrete which is to be treated subsequently.

For this treatment use is made of a 10 to 40 per cent diluted hydrochloric acid applied with a brush. Since the binder in the concrete is extremely sensitive to acids the concrete is washed with water immediately after the treatment to put an end to the attack by the acid and to remove the material which has been dissolved. To discontinue the acid attack, the acid can also be neutralised by washing the concrete surface with diluted ammonia.

Newly Hardened Concrete

Sand-blasting is regarded in Sweden as a relatively expensive method of concrete surface treatment. It is considered important that the concrete should be cast to avoid excessively large casting defects and irregularities because sand-blasting never reaches down to any appreciable depth. Sand-blasting of concrete is much easier to carry out if the formwork has previously been coated with retarders.

A rustic surface texture can be produced by tooling with a bush hammer or a chisel—at times use is also made of pneumatically operated chisels. This treatment affects the concrete to a considerable depth, and if the reinforcement is not to be visible or too near the surface, casting should be carried out to protect the reinforcing bars by a concrete cover of appropriate thickness. Old concrete surfaces can likewise be successfully treated with masons' tools. A concrete surface can be subjected to this treatment one week after casting at the earliest.

Scraping of concrete surfaces should preferably be performed within one day after casting. To facilitate scraping the formwork is frequently coated with some retarder. The coarse aggregate in this case should range from 4 to 8 mm. in particle size. After scraping the concrete surface is washed with water and is then cleaned with hydrochloric acid, if required.

An International Colloquim on concrete surface finishings, sponsored by CIB and organised by the Cement and Concrete Association, was held at the latter's Wexham Springs (Buckinghamshire) laboratories from April 24 to 27. The preceding paper was submitted by the Swedish delegate, a Stockholm architect.

TECHNICAL REVIEW

This Review of plant, equipment and materials—in most cases new or with new features—is intended to give brief details only of the products mentioned. Notices are based on data supplied by the manufacturers. Additional information and prices can be obtained either direct or by using the prepaid Readers' Service form which appears on page 170 of this issue. The form can be used for more than one inquiry.

1. Ceilings

A new demountable fibrous PLASTER TILE, 20 in sq. is being produced to suit buildings constructed to the CLASP system which is on a 40 in. module. The suspended tile ceilings are supplied and erected as a dry construction and carried on concealed galvanised tees and hangers. They can be installed in all types of buildings.

The tiles can be supplied either plain, acoustic or decorative and each individual tile is removable to permit access to all services in the void above. As they are manufactured from gypsum, they are completely non-combustible and provide a fire rating of from half hour to one hour depending on the type certified.

Dejongs Ltd.,
49a Rectory-grove, London, SW4

2. Finishes

A polyester WALL FINISH that 'cures' in a few hours after application is shortly to be made available in this country. The material is called Versalloyd, and was developed by the United States Rubber Company. The resin cures by additional polymerisation, promoted by a catalyst, and the cure proceeds uniformly through the layer. Complete reaction of the chemical constituents takes place during curing, and once this period has elapsed, no further ageing can occur.

This process leaves a smooth, waterproof, tile-like surface that is permanently keyed to the wall and which is extremely durable. It can be easily applied by brush, roller or spray to masonry, concrete, plaster, stucco, cement, asbestos, breeze and other surfaces. The material has excellent resistance to water, chemicals, stains and contamination and should be suitable for use in hospitals, schools, food factories and laboratories. Both interior and exterior walls can be decorated with this new polyester finish.

Lloyds Packing Warehouses (Hldgs.) Ltd., New Barns Works, Sth. Langworthy-rd., Salford.

3. Flooring

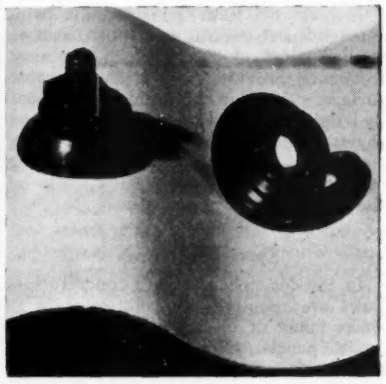
A new FLOORING MATERIAL, for use on industrial floors and ship's decking, has recently made its way into this country via America and Sweden. The material, which is based upon epoxy resins, is manufactured in two parts, one part being the hardener. When the two parts are mixed together with an aggregate such as quartz sand, the resulting hardened surface is extremely tough and resistant to chemicals and water. Being 100 per cent solid it will not crack and is in fact up to fifty times more elastic than normal concrete, and stronger. It will bond to many materials, among them cement, wood and metal, and is applied in the same way as cement. The thickness of the composition laid need not be greater than ¼ in.

Cementex (UK) Co.,
157-9 High-st., Orpington, Kent.

4. Roofing

Some new polythene ROOFING WASHERS for use on corrugated sheeting have been specifically designed to give a watertight seal. Three annular inner rings block any water seepage into the inside face of the washer whilst a smooth, acutely angled outer surface ensures that any moisture will easily run off and not form capillary water traps. Even when the

Below left: applying the filler coat to a cinder block wall to give a smooth base surface. The finishing coat of 'Versalloyd' is applied when the filler coat has catalysed. The man on the left is using a rubber-edged smoothing tool to press down the filler coat (see Finishes). Below right: the new polythene roofing washers designed with three annular inner rings and knife-edge perimeter to give a complete watertight seal. (See Roofing.)



nuts are little more than fingertight, the washer is said to be completely waterproof. They are available for both $\frac{5}{16}$ in. and $\frac{1}{4}$ in. bolts and caps can be supplied if required.
H. C. Nicholls (Farnham) Ltd.,
93 Crondall-lane, Farnham, Surrey.

5. Radiators

As a result of joint British and Swedish research, a SINGLE PIPE RADIATOR—a radiator with a single pipe connection for both flow and return and a temperature control valve—has been marketed suitable for any hot water ring main system.

There is one connection only to each radiator; this connection consists of a special tee piece and a variable control valve together with union and spacing piece. Installation is simple for, as the radiators are supplied complete with the single connection, they have only to be dropped into position and connected up. This patented connector handles both the flow and return of the radiator, the control valve giving variable control of the temperature. The connector is suitable for either surface or underfloor pipe runs. Forty per cent. in labour costs are said to be saved by this method of installation.

The one pipe system has been designed primarily for private house heating, but fittings for larger installations are being developed. Heat requirements and pipe size calculations are basically those used for conventional systems and surface calculations are made in the normal manner, flow to return temperature drop being of the order of 20°F. Circulating pump calculations are as standard practice, the connector having a resistance factor of four. The units are suitable for use on systems employing all types of automatic thermostatic control.

The manufacturers plan to commence training courses on these radiators for engineers and plumbers during September.
Bekon Supplies Ltd.,
Beaconsfield, Bucks.

6. Cladding

In order to simulate a matchboarding finish, new ALUMINIUM ALLOY PLANKING section is being produced. The standard size is 16 ft. long by 4 in. wide and the material, which can be supplied in either plain mill or stove enamelled finish, weighs only .3 lb. per sq. ft. Vertical ribs increase rigidity and strength and allow free ventilation behind the planks.

The planking is weatherproof and rotproof, needs no maintenance and has a pleasing appearance. Originally it was designed for shopfitting but the material would also be most suitable for surfacing ceilings, walls and canopies on most types of buildings.
Marsland & Co. Ltd.,
Conington-rd., Lewisham, SE13.

7. Cutting

A new CUTTING MACHINE, suitable for every workshop, for handling round or square bars, tubes, channels and sheet metal, has recently been developed. Known as the 'Neva-Scimitar,' it cuts, in a few seconds, light and heavy gauge bar, strip, tube and sheet in steel, plastics and non-ferrous metals. The machine is powered by an 8 h.p. electric motor, designed specially for high speed running. It also permits high speed mitre cutting, shortening and groove cutting of angles in sheet metal. A special 21 in. dia. alloy cutting blade is fixed directly on the motor shaft and is easily removable for re-sharpening. A number of advantages are claimed for the machine: no distortion; rapid cutting with little heat generated; no wasted time on cutting; and economic siting.
Anderston Clyde Engineers Ltd.,
Irkvale Works, Chadderton,
Lancs.

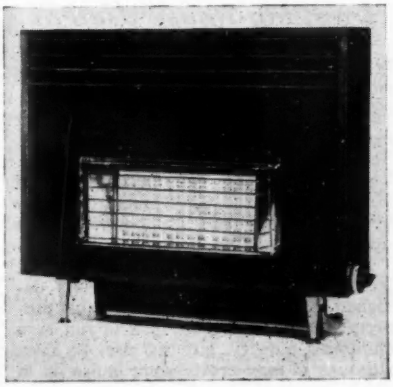
8. Heating

In the design of a gas ROOM-HEATER, recently exhibited, use has been made of wood (either mahogany or light oak) for the surround. This is the first time wood has been used in the construction of a gas fire and this has been made possible through a special polyester finish which makes it resistant to heat. The fire supplies both radiant and convected heat in equal proportions.

The heating radiants are behind a heavily chromium polished protective guard positioned in the centre of the wood surround in a vitreous-enamelled fascia. Direct heat is radiated forwards but cold air is also drawn in at floor-level, warmed by a heat exchanger, and continually circulated through convector louvres of rustless steel. This convected heat keeps the temperature of the room at a steady and comfortable level. An interesting feature in the design of the louvres is that the warm air is thrown well forward of the fire and helps to avoid marking the wall behind.

The fire can also act as an air conditioner. By adjusting a patent ventilation control at the bottom of the fire, stuffy or smoky air can be cleared from a room without the need to open windows or doors. The new heater is battery ignited and will fit any standard fireplace. It stands on two short legs so that the hearth beneath can be easily cleaned. It will be marketed in September.
Sidney Flavel & Co. Ltd.,
Leamington Spa, Warwickshire.

The new 'Debonair' gas room-heater.



Trade News

A Calculating Wheel

EVODE LTD., and their associate company Evomastic Ltd., have recently brought out a double-sided calculating wheel. One side calculates the quantities of gunning, knifing and strip grades of mastic for sealing joints of all dimensions likely to be met with in practice, in runs ranging from 10 ft. to 10,000 ft. The reverse side enables rapid estimation of materials required per cubic yard of concrete for several different mixes, and including the use of a wide range of chemical additives for producing special effects such as entrained air, waterproofed, densified concrete.

The wheel is available free of charge, on application to either Evode Ltd., or Evomastics Ltd., both of Stafford.

Tile Agency

PHARAOH'S PLYWOOD LTD. (Wallboard Division), Adelaide House, EC4, announce that they have been appointed sole agents in the United Kingdom and Ireland for the sale of the Forestone range of acoustic tiles manufactured by the Simpson Timber Company, Seattle, Washington. The Forestone Tiles are a high grade fibre insulating board with different patterns incised on the face side and with a factory applied flame-retardant surface. They are available in various sizes and thicknesses with different edge treatments, making them suitable for fixing by all the recognised methods.

London Sales Merger

THE LIGHTING AND HEATING Group of the GEC announce the merging of their Central, North and South London sales areas into one organisation which will operate from new headquarters at Lena Gardens, Hammersmith, W.6. The new organisation will comprise full sales and technical services and is to be headed by Mr. S. E. Mason, previously manager Central London Area.

Domestic Colour Planning

THE RESULTS of a study of domestic colour planning with Warerite decorative laminated plastics patterns, carried out by Mr. R. Thomas Day, FRSA, AIBD, a colour consultant, are available in booklet form from the Warerite Colour Advisory Service, Bakelite Ltd., 12-18 Grosvenor-gardens, London, SW1. A broadsheet is included which displays the Warerite patterns in colour.

New London Office

EKCO PLASTICS LTD. have moved their London offices from 5 Vigo-street, W1, to larger and more modern premises at 41-47 Old-street, EC1. The new address has been effective from August 28.

Joinery Expansion

AUSTINS OF EAST HAM LTD. announce that they have acquired riverside premises for joinery production and storage at London-road, Barking. This acquisition more than doubles the area occupied by their London factories and is a further step in the expansion of the Austin-Hall Group.

Town Planning Decisions

Conversion from Barn to House

Permission in Green Belt Refused

THE Minister of Housing and Local Government has refused to give the National Provincial Bank permission to convert a barn at Randalls Farm, Portsmouth-road, Cobham, into a house with a garden.

The bank appealed against Esher Council's refusal to allow this conversion and in making his decision the Minister says that although the site lies between a farmhouse to the north and a petrol filling station and three houses to the south, it is also in the south-west corner of a rural area, bounded on three sides by the Old Common. The site of the barn is in an isolated part of backland.

The Minister says the proposal amounts to the building of a new house in the green belt where, in his opinion, new building must be severely restricted. If permission were given for the development it would harm the planning authority's policy to preserve the area. He does not consider that an exception to this policy is justified.

Site Reservation for A Developer 'Essential to the Life of the Village'

Minister Reverses RDC Refusal

THE HERTFORD RURAL DISTRICT COUNCIL'S recent refusal to allow an application for permission to erect a bungalow on a site at Church Hill, Hertford Heath, has been reversed by the Minister of Housing and Local Government, on appeal.

In his report to the Minister the Inspector noted that the suitability of the site for the proposed bungalow was not disputed. The planning authority wished to reserve the site for some future developer whose presence could be considered essential to the life of the village, and although the appellant had family connections in the village, he had no such claim. In the inspector's opinion, however, the same could be said of the majority of the people who had set up new homes in the village during the past few years, since most of them travelled outside the village to work. The council owned most of the available vacant land and had made adequate provision for housing for at least twelve years. Considerable expansion had been allowed in Hertford Heath and, although the appellant did not qualify for the local authority housing waiting list he already lived in the village and had family connections with it. He (the inspector) did not think a case had been made for preventing the appellant from building a dwelling to suit his present needs and he therefore recommended that the appeal be allowed.

The Minister agreed that, in the circumstances, it would be unreasonable to refuse permission for the bungalow solely in order to reserve the site for some other person with a greater need to live in the village than the appellant. He therefore accepted his inspector's recommendation and allowed the appeal.

Residential Development of Cliff-top Farmland

Minister Allows College Appeal

CONTRARY to the recommendation of his inspector and the views expressed by the Kent County Council, the Minister of Housing and Local Government has allowed an appeal by St. John's College, Cambridge, against the planning authority's refusal to permit the erection of houses on a belt of farmland on Birchington Cliff, near Margate. This area is the only remaining open sea-front site on Margate's nine-mile stretch of coastline. The college is now free to proceed with its proposals to sell 27 acres of the 136-acre Upper Gore End Farm, Birchington, on the top of the cliff.

The Minister points out, in the course of his decision, that the appeal land is sandwiched between two large areas of residential land, and that on the development plan for the area it is earmarked for development in the 6-20 years period beginning in 1963. While he saw no reason to doubt that the appeal site was a useful agricultural area, he had regard to the fact that the Minister of Agriculture had agreed to the proposed development of the land. Under those circumstances he did not feel justified in holding up the proposed residential development for two years.

Proposal Rejected for Development of Peer's Estate

Unzoned in Development Plan

AN APPEAL by Lord Monson, of South Carlton, against Lincoln Corporation's refusal to grant planning permission for the erection of houses on the Burton-road frontage of his estate has been dismissed by the Minister of Housing and Local Government.

The Minister has based his refusal on the fact that the land is unzoned in the development plan and is on the edge of the built-up area of the City of Lincoln, with open country to the north and west. Houses on Burton Ridge, he says, would be too prominent and would affect the view of Lincoln from the west.

Dwelling-House Used as Employment Agency

Introduction into Residential Area 'Inappropriate'

PERMISSION TO ESTABLISH an employment agency, operating from a single room at Seaton House, Seaton-road, Camberley, has been refused by the Minister of Housing and Local Government, who has upheld Frimley and Camberley UDC's decision not to allow the proposed user.

Seaton House, the Minister points out, is in an area of mainly good-class detached houses. He notes that the property next to the appellant's is run as a children's nursery, but this use, he says, although it may create some noise, is in place in a residential area. He appreciates that it is the appellant's intention to conduct the proposed business unobtrusively but he agrees with the planning authority that the introduction of a business use, whether temporary or permanent, into this residential area would be inappropriate.

Building in the Country

Minister's Advice

ANYONE WISHING TO RETIRE to the country, said MR. JOHN MACLAY, Secretary of State for Scotland, in dismissing an appeal by Mr. J. M. B. Kydd against the refusal of Inverness County Council to allow him to build a house at Fasagh, Invermoriston, a hamlet overlooking Loch Ness, would be well advised to obtain a copy of the booklet 'New Houses in the Country' from his local planning authority and to consult the planning officer of the area in which he wished to settle before deciding on any particular site.

After a two-day inquiry, the Commissioner, Mr. F. A. B. Preston, recommended the dismissal of the appeal.

The Secretary of State accepted this recommendation and stated that while he had great sympathy with the appellant in his desire to retire to the vicinity of his birthplace, he considered that wider interests would be better served by preserving the site undeveloped in favour of the many tourists and others who had occasion to pass that way. Too many people wishing to build in isolated spots, he added, would mar the scenery of the countryside, and building must therefore be carefully controlled.

Development Affecting Open Space Disallowed

Re-zoning Affects Southwark

FOLLOWING a local inquiry, held on January 19 before Mr. V. H. Loney, ARIBA, AMTPI, the inspector appointed by the Minister of Housing and Local Government, the Minister has dismissed an appeal by the Corporation of Trinity House against the refusal of the LCC to permit the development of land bounded by Swan-street, Harper-road and Brockham-street, Southwark, SE, for the erection of 74 flats and 33 garages.

A proposal has been submitted by the LCC for the re-zoning of the greater part of the land from residential to public open space, and this proposal is still under consideration by the Minister. In his report to the Minister, the inspector said that the amount of overlooking and overshadowing that would be caused by the proposed development, and its effect upon the skyline from Trinity-square, would not result in undue loss of amenity, or detract from the character of the square and its buildings. He recommended that the appeal be allowed, subject to the Minister's decision on the re-zoning proposal. Whilst the Minister is not yet in a position to give his decision on the proposals as a whole, he has decided that he should not allow development which would affect the open space proposal and, therefore, he has dismissed the corporation's appeal.

Density of Residential Development

Restriction to 4-5 Dwellings per Acre Overruled

ORPINGTON UDC'S REFUSAL to allow the residential development of land at Worlds End-lane, Green Street Green, at a density of four to five dwellings per acre has been overruled on appeal by the Minister of Housing and Local Government.

The inspector noted in his report that the site was allocated for residential development during the 6-20-year stage of the development plan which will not begin until January, 1963. On the evidence before him, however, he thought that the development of the second stage land would become necessary earlier than the council suggested, and after consideration of all the circumstances he reached the conclusion that there was insufficient justification for further withholding permission to develop the site. He thought, however, that the present proposal to develop at four to five houses per acre would be excessive in relation to the existing two dwellings per acre pattern of this pleasant residential neighbourhood and would be detrimental to the character and general amenities of the area. With regard to the agricultural objection to the development, he thought that the loss, apart from its obvious significance, to the tenant of the holding, with whom he had the fullest sympathy, would be of only local significance in depriving local residents of a very convenient supply of garden produce. He recommended that the appeal be dismissed without prejudice to a further application to develop the site at a density more comparable with that of the existing development.

The Minister, in the course of his decision, stated that he agreed with the inspector that there was not sufficient reason for withholding permission for the development of the site at the present time. On the question of density, he noted that there were quite a number of houses in the vicinity, particularly along the Meadows, Oxendon Wood-road and Worlds End-lane, in curtilages comparable with the density of the development now proposed at four to five houses per acre, and for this reason he was unable to accept the inspector's recommendation that the proposed density was such as to justify dismissal of the appeal. The Minister therefore decided to allow the appeal (at a density of four dwellings to the acre) subject to the condition that the layout of the site, the siting, design and external appearance of the buildings and the means of access should be as may be agreed with the local planning authority or, in default of agreement, as should be determined by the Minister.

Surrey Housing Scheme

Density of 3½ Houses per Acre Permitted

THE RESIDENTIAL DEVELOPMENT of land in Sandy-lane, Cobham, Surrey, at a density of approximately three-and-a-half houses to the acre has been approved by the Minister of Housing and Local Government following an appeal by Mrs. K. Taylor against the refusal of Esher UDC acting on behalf of the Surrey CC, to allow the proposed development.

The inspector, in his report to the Minister, said he considered that very special circumstances were necessary to justify house plots of more than a quarter-of-an-acre in a first period residential zone near a convenient railway station within 20 miles of London. While recognising the desire of the local residents to maintain the undoubtedly attractive character of their environment, he doubted whether the difference between development at two and development at three-and-a-half-houses to the acre would make so much difference to them as to justify the lower density. Most of the trees would have to come down, in any case, if the land was to be used for its planned purpose, and he had no reason to suppose that the design and character of the houses would be appreciably less attractive than other houses in the neighbourhood, nor to foresee that there would be any depreciation in residential property values in the area if the proposed development were permitted. He recommended that the appeal be allowed to the extent that permission be granted for the erection of 31 houses, for the reason that this would secure an appropriate density of development.

The Minister stated in the course of his decision that he agreed with the inspector's conclusions and accepted his recommendation.

Proposed Village Developments not to be Permitted

Project 'Would Break into Open Land'

A PROPOSAL by Capt. A. E. Large, a local farmer, to erect a farmhouse and buildings on Lodge Hill, in the Sussex village of Ditchling, and to demolish his existing buildings on Court Farm, beside the parish church, and to sell the land for building terrace houses, has been rejected by the Minister of Housing and Local Government, on appeal. The Minister has stated that the Lodge Hill project would break into open land between Ditchling and the adjoining village, and that the house building scheme would spoil the appearance of that part of the village.

Prefabricated Bungalow

Approved in Area of Traditional Redevelopment

AN APPEAL by Mr. A. F. Sumner against the refusal of the Epping and Ongar RDC, acting on behalf of the Essex CC, to allow the erection of a 'Woolaway' prefabricated bungalow on a site in Beehive-chase, Blackmore, Essex, has been allowed by the Minister of Housing and Local Government. The grounds for the council's refusal were that a prefabricated bungalow would be out of harmony with the traditional brick-built dwellings which, in the Blackmore area, were gradually replacing the timber and asbestos shacks of pre-war days.

In his report to the Minister, the inspector stated that the argument resolved itself into one over the materials to be used in constructing the walls, namely bricks or concrete panels, and presumably the council would not object to brickwork covered with concrete paint. The difference would then be that the joints of the concrete painted panels would be noticeable, whereas no joints could be seen in brickwork similiarly treated. He expressed the view that such a nice distinction came within the realm of quibblings. Except for a few outstanding exeeptions, added the inspector, the dwellings in the whole of the area had little architectural merit. They were in no respect superior in appearance to that of the photograph of the 'Woolaway' bungalow. The Ministry had approved this type as a dwelling, and if it was not to be regarded as suitable for an area such as this he was left wondering for what sort of area it would be suitable.

In the course of his decision, the Minister noted his inspector's finding that, with a few outstanding exceptions, the dwellings in the area were not superior in any way to the proposed bungalow, and his recommendation that the appeal be allowed on the ground that it did not necessarily follow that if a dwelling was of prefabricated construction it had to be aesthetically displeasing or of a lower grade than one built of brickwork. The appeal was allowed.

Use of Multi-Coloured Bricks

UDC's Condition Discharged on Appeal

A CONDITION imposed by Haslemere UDC when granting planning permission for the demolition of an existing house and outbuilding and the erection of a new house, service cottage and garage at Holdfast-lane, Haslemere, Surrey, has been discharged by the Minister of Housing and Local Government, on appeal. The condition was 'walls of front and side elevation fronting on to Holdfast-lane to have multi-red facing bricks.'

The Minister, in the course of his decision, notes that there is a certain variety of facing materials on houses near the appeal site. He is of the opinion that the use of multi-coloured bricks, unless very carefully selected, could result in a harshness out of keeping with the environment, and hand-made bricks are expensive. With the proposed green and rustic roof tiles, the Minister can see no objection to a surface of white or off-white colour-wash, provided the brick has a reasonable texture.

Work at Carlisle BR Yard

IT HAS BEEN announced that work on the £5m. Kingmoor railway marshalling yard near Carlisle will now continue, and not be halted as reported in 'The Builder' late news of August 18. A plan has been devised to keep within the financial limits imposed, and also to comply with the Signal Engineer's original programme. This latest decision follows a meeting between the main contractors and the railway departments concerned.

THE BUILDER CURRENT PRICES

THE information given on these pages has been specially compiled for *The Builder* and is copyright. It is the intention that the details given should indicate fair average prices of materials, not necessarily the highest or the lowest. The prices apply to large quantities of materials loaded at works, delivered at London Stations or at site in London Area as stated. Prices for smaller quantities ex merchant's warehouse will necessarily be higher so as to include the stocking and handling costs involved. It is recommended that the prices of materials should be confirmed by inquiry from suppliers and merchants.

AGGREGATES AND SAND

		£	s.	d.
Delivered site in full lorry loads. Average of prices for Boroughs of Westminster, Paddington, Holborn and St. Pancras.				
Pit Ballast	per yd.	1	5	5
Pit Sand	,,	1	3	8
Washed Sand	,,	1	6	9
¾ in. Shingle	,,	1	4	3
¾ in. Broken Brick	,,	1	0	9
Pan Breeze	,,	1	5	0
Fine or Coarse Foamed Slag Aggregate	per ton	3	8	0
2 yds. of fine and 2.6 yds. of coarse per ton.				

CEMENT, etc.

		£	s.	d.
Including non-returnable jute sacks or paper bags.				
Best British Portland Cement. Standard Specification delivered Charing Cross area.				
8-ton loads and upwards, site	per ton	5	16	0
Below 8 tons down to 4 tons, site	,,	6	8	0
Below 4 tons down to 2 tons, site	,,	6	12	0
Below 2 tons down to 1 ton, site	,,	6	14	0
Rapid-Hardening Cement in 8-ton loads and upwards to site	,,	6	6	6
Below 8 tons down to 4 tons, site	,,	6	18	6
Below 4 tons down to 2 tons, site	,,	7	2	6
Below 2 tons down to 1 ton, site	,,	7	4	0
Aquacrete Water Repellent Cement. 32s. 6d. per ton on ordinary cement prices.				
Sulphate Resisting Cement. 32s. 6d. per ton on ordinary cement prices.				
Red, Buff or Khaki Colocrete in 8-ton lots	,,	8	16	0
Other colours according to colour.				
In 4-ton lots from 313s. 3d. to 783s. 3d. per ton.				
White Portland Cement	,,	14	0	9
Under 1 ton	per cwt.		17	0
417 Cement (Ultra Rapid Hardening) in 8-ton lots and upwards	per ton	7	8	6
Super Cement (Waterproof), 32s. 6d. per ton above Portland Cement.				
Cullamix Tyrolean Finish, £11 13s.3d. to £14 8s.3d. (1-ton loads and upwards).				
Ciment Fondu and Lightning Brands High Aluminous cement, 6-ton lots and up	,,	15	14	6
Stourbridge Fireclay, 6-ton loads at Railway Depot, London	,,	6	19	0
Stourbridge Fireclay, 6-ton loads (London sites)	,,	7	12	0
Moler Mortar Powder for Flue Bricks (London sites)	per cwt.	1	6	0

BRICKS

		£	s.	d.
Full Loads				
First Hard Stocks	per 1,000	16	19	6
Second Hard Stocks	,,	14	18	6
Mild Stocks (Kiln Burnt)	,,	11	5	0
Mild Stocks	,,	11	0	0
All loaded free into lorry at the works. The question of haulage is still very difficult and prices must be obtained from job to job.				
2½ in. Nominal Fletton Bricks to sites in W.C. district :				
Commons	,,	6	12	0
Cellular Commons	,,	6	12	0
Keyed do.	,,	6	14	0
Rustics	,,	8	12	0
Cellular Rustics	,,	8	12	0
Single Bullnose Commons	,,	8	14	6
Sandfaced	,,	9	12	0
Tuscans	,,	10	7	0
Saxons	,,	10	15	0
Golden Buffs	,,	11	2	0
Dapple Light Facings	,,	11	9	6
Heather Facings	,,	11	5	0
Best Blue Pressed Staffs (London sites)	,,	34	0	6
do. Bullnose (London sites)	,,	34	19	6
Blue Wire Cuts (London sites)	,,	29	19	6
Midhurst Lime Bricks (London sites)	,,	11	13	0
Uxbridge Whites (London sites)	,,	12	3	6
Special Purpose Sandlime Bricks (London sites)	,,	9	2	0
Best Stourbridge Fire Bricks :				
2½ in. (London stations)	,,	32	14	0
2½ in. (London sites)	,,	33	2	9
3 in. (London stations)	per 1,000	39	4	6
3 in. (London sites)	,,	39	15	0
2½ in. Moler Flue Bricks (London sites)	,,	31	0	0
2½ in. Machine-made Sandfaced Red Facings (London sites)	,,	18	19	0
2½ in. Machine-made Multi Red Facings (London sites)	,,	19	4	0
2½ in. Hand-made Sandfaced Red Facings (London sites)	,,	20	17	6
2½ in. Hand-made Sandfaced Multi-Colour Facings (London sites)	,,	20	17	6
Hand-made Sandfaced Cherry Red Facings, Berkshire district (London sites)	,,	21	5	0
Hand-made Sandfaced Multi-Colour Facings, Berkshire district (London sites)	,,	21	5	0
Rubber Bricks for gauged arches (London sites)	,,	52	5	0
2½ in. Surrey Clamp Burnt Multi Stock Facings (London sites)	,,	16	15	0
2½ in. Surrey Kiln Burnt Multi Stock Facings (London sites)	,,	18	7	6
Glazed Bricks (London sites), White, Ivory, Brown:				
Stretchers	,,	64	0	0
Headers	,,	63	0	0
Quoins, Bullnose and 4½ in. Flats	,,	80	0	0
Double Stretchers	,,	85	0	0
Double Headers	,,	77	10	0
One side and two ends	,,	87	0	0
Two sides and one end	,,	89	10	0
Splays and Squints	,,	83	0	0
Cream and Buff, £3 extra over White. Other colours, hard glaze, £8 10s. 0d. extra over White. All above prices plus 47½% for Best quality and plus 47½% less 10% for Second quality.				

PARTITION SLABS, etc.

Delivered Central London Area. (W.C. District).

		£	s.	d.
HOLLOW CLAY PARTITION BLOCKS (Keyed)				
Minimum lorry loads				
*2½ in. 140 yds.	per yd. sup.		4	7
BUILDING BLOCKS (Keyed)				
*3 in. (6 cavity) 110 yds.	,,		5	9
*4 in. (6 cavity) 90 yds.	,,		7	3
6 in. (8½ in. × 5½ in.) 1,250 blocks	per 1,000	28	9	0
* Half blocks at no extra charge.				
CLINKER CONCRETE				
2 in. 100 yds.	per yd. sup.		4	0
2½ in. 85 yds.	,,		4	7
3 in. 75 yds.	,,		5	8
4 in. 55 yds.	,,		7	0
CRANHAM TERRA COTTA				
2 in.	,,		7	5
2½ in.	,,		8	4
3 in. Load bearing quality	,,		9	6
4 in. do. do	,,		11	6
MOLER PARTITION BLOCKS				
2 in. 150 yds.	,,		12	9
2½ in. 120 yds.	,,		13	9
3 in. 100 yds.	,,		14	9
4 in. 90 yds.	,,		17	0
LIGHTWEIGHT CONCRETE BUILDING AND PARTITION BLOCKS OF VARIOUS SOURCES OF MANUFACTURE				
2 in. 100 yds.	per yd. sup.		5	4
2½ in. 80 yds.	,,		6	5
3 in. 65 yds.	,,		7	5
4 in. 50 yds.	,,		9	4
4½ in. 44 yds.	,,		10	2
6 in. 33 yds.	,,		14	5
THERMALITE-YTONG PARTITION BLOCKS				
2½ in. 144 yds.	,,		7	0
THERMALITE-YTONG LOAD-BEARING INSULATING BLOCKS				
3 in. 120 yds.	per yd. sup.		8	5
4 in. 90 yds.	,,		11	0
5 in. 72 yds.	,,		13	9
6 in. 60 yds.	,,		16	6
8½ in. 42 yds.	,,	1	3	8
FLOOR BLOCKS AND FILLER TILES				
Floor Blocks 12 in. × 12 in. delivered in full lorry-loads :				
3 in.	per 1,000	35	14	0
4 in.	,,	38	9	0
5 in.	,,	46	1	0
6 in.	,,	52	12	0
7 in.	,,	64	12	0
8 in.	,,	75	9	0
9 in.	,,	83	2	0
10 in.	,,	92	0	0
Filler Tiles in multiples of 10 tiles per 1,000 multiples :				
12 in. × 3 in. × ¾ in.	,,	43	13	0
12 in. × 4 in. × ¾ in.	,,	75	7	0
10 in. × 5 in. × ¾ in.	,,	75	7	0

STONEWARE DRAIN PIPES, etc.

Glazed Stoneware Standard List (November, 1956).

		4 in.	6 in.	9 in.
Pipes, 2 ft. lengths	per ft.	1/8	2/6	4/6
Bends	each	5/–	7/6	20/3
Junctions	„	8/4	12/6	27/–
Gullies with 4 in. outlets	„	12/6	13/9	22/6

The following are the percentages to be added to the Standard List (November, 1956) prices delivered London Area.
Delivered ex Merchants Wharf or Depot.

	Over 2 tons	Over 100 pieces Under 2 tons	Under 100 pieces Under 2 tons
	NET	+22½%	+27½%
Best Quality ...			
BSS Best Quality...	+10 % NET	+10 %+22½%	+10 %+27½%
Tested Quality ...	+37½% NET	+37½%+22½%	+37½%+27½%
BSS Tested Quality	+47½% NET	+47½%+22½%	+47½%+27½%

		£	s.	d.
3 in. Land Drain Pipes (in 12 in. lengths)	per 1,000	12	10	6
4 in. do. do.	„	16	16	0
6 in. do. do.	„	34	10	0
9 in. do. do.	„	64	19	0

DAMP COURSE

		£	s.	d.
Hessian base bitumen 7 lb. per yd. sup. in 24 ft. rolls cut to wall widths in lots of £6 value and over delivered London area	per yd. sup.		3	5
Asbestos base do. 7 lb. per yd. sup.	do. do.		5	2
Lead lined bitumen do. 9½ lb. per yd. sup.	do. do.		12	2
18 in. × 9 in. Brftish damp course slates	per 1,000	43	8	11
14 in. × 9 in. do. do.	„	32	8	2
9 in. × 9 in. do. do.	„	18	18	9
18 in. × 4½ in. do. do.	„	19	19	9
14 in. × 4½ in. do. do.	„	15	18	3
9 in. × 4½ in. do. do.	„	10	14	3

STONE

		£	s.	d.
Bath Stone				
Monks Park	per ft. cube		10	3
St. Aldhelm Box Ground	„		11	6
Delivered in railway trucks at South Lambeth B.R. Western Region.				
Doulting Stone Random Blocks. Delivered London area	„		10	10
Beer Stone. Delivered London area	„		10	6
Portland Stone—				
Brown Whitbed in random blocks, 20 ft. average delivered in railway trucks at Nine Elms, B.R. Southern Region	„		9	10
Yorkshire Stone—Blue Robin Hood Quality. Delivered to site London in 6-ton lots.				
9 in. × 3 in. Rubbed, weathered, throated and stolled cills	per ft. cube	4	5	10
12 in. × 6 in. do. do. do.	„	3	1	2
12 in. × 3 in. Plain coping, twice throated	„	2	7	6
12 in × 3 in. Weathered and twice throated coping	„	3	3	3
14 in. × 6 in. do. do. do.	„	2	17	0
4½ in. × 9 in. Plinth rubbed on top and face ...	„	2	11	0
3 in. sawn two sides Slabs, random sizes	per ft. sup.		9	1
Templates and Cover Stones, 3 in., 4 in. and 6 in. thick, edges coped for rendered brickwork ...	per ft. cube	1	11	3
do. do. fair one edge for fair faced brickwork	„	1	17	0
Hard York—				
12 in. × 2 in. Square Steps, rubbed on top and edge	per ft. run		11	0
14 in. × 3 in. Round-nosed Steps, rubbed on top and front	per ft. cube	2	18	3
12 in. × 6 in. Plain Steps, rubbed top and front	„	2	11	0
2 in. Rubbed and Jointed Paving, given sizes ...	per ft. sup.		10	3
2 in. Sawn Paving, edges squared, in random sizes	per yd. sup.	3	12	0

TILES AND PANTILES

	£	s.	d.
Delivered London area by road in 6 tons or over per 1,000.			
Machine-made Pantiles and French pattern Tiles from Lincolnshire district	35	16	6
Hand-made Pantiles Berkshire district	64	10	0
Hand-made Double Roman Bridgwater district	78	2	9
Hand-made 10½ × 6½ tiles Berkshire district	18	0	0
Machine-made 10½ × 6½ Staffordshire district	17	0	0
Hand-made Hip and Valley tiles per doz.	1	13	0
Machine-made Hip and Valley tiles do.	1	12	0
Concrete tiles 10½ × 6½	8	10	0
do. Interlocking (49S)	19	16	6

NOTE.—Breakage in transit, purchasers' responsibility.

SLATES

First-quality Slates from Penrhyn or Portmadoc, carriage paid in full truck loads to London Rate station. Per 1,000 actual.

	£	s.	d.
24 × 12	160	4	0
22 × 12	126	15	0
22 × 11	114	15	0
20 × 12	107	5	0
20 × 10	105	0	0
18 × 10	71	5	0
18 × 9	62	14	0
16 × 10	54	15	0
16 × 8	42	18	0

NOTE.—Breakage in transit, purchasers' responsibility.

TIMBER

			£	s.	d.
Softwood	Ex Wharf	per standard	£115 to £140		
Joinery quality					
Carcassing quality	do.	„	£94 — £98		
1 in. Tongued and Grooved Flooring	do.	„	£112	0	0
Hardwood			£	s.	d.
Mahogany—African S.E.	do.	per ft. cube	1	17	6
do. Honduras S.E.	do.	„	3	5	0
Oak European S.E.	do.	„	2	10	0
do. Japanese S.E.	do.	„	3	0	0
do. English Logs sawn ...	do.	„	2	0	0
Teak 8 in. average S.E. ...	do.	„	3	17	6
Walnut African Logs sawn ...	do.	„	1	2	6
Plywood		per			
6 mm. (¼ in.) Birch Plywood B/BB		100 sq. ft.	4	3	6
6 mm. Israeli Gaboon do. B/BB exterior grade WBP (AX100)		„	4	5	3
18 mm. Birch Blockboard		„	9	7	0
¾ in. Douglas Fir Plywood 96 in. × 48 in. Exterior grade WPB (AX100) solid two sides		„	9	3	0

DOORS (in Lots I-II)

		£	s.	d.
Delivered London area.				
1¼ in. 4 Horizontal Panel. Pattern 4 in. deal				
2 ft. 0 in. × 6 ft. 6 in.	each	1	16	0
2 ft. 3 in. × 6 ft. 6 in.	„	1	17	6
2 ft. 6 in. × 6 ft. 6 in.	„	1	18	6
2 ft. 9 in. × 6 ft. 6 in.	„	2	0	6
2 in. do. but top panel open. Pattern 4 × G in deal				
2 ft. 6 in. × 6 ft. 6 in.	„	2	9	0
2 ft. 9 in. × 6 ft. 6 in.	„	2	11	6
2 in. 2 Panel top panel open. Pattern 2 × G in deal				
2 ft. 6 in. × 6 ft. 6 in.	„	2	3	0
2 ft. 9 in. × 6 ft. 6 in.	„	2	5	0
1¾ in. Plywood Faced Flush Doors to BS459, Part 2A				
2 ft. 0 in. × 6 ft. 0 in.	„	1	12	3
2 ft. 0 in. × 6 ft. 6 in.	„	1	12	3
2 ft. 3 in. × 6 ft. 6 in.	„	1	13	9
2 ft. 6 in. × 6 ft. 6 in.	„	1	15	3
2 ft. 9 in. × 6 ft. 6 in.	„	1	18	0
1¾ in. Hardboard Faced Flush Doors				
2 ft. 0 in. × 6 ft. 0 in.	„	1	5	6
2 ft. 0 in. × 6 ft. 6 in.	„	1	6	0
2 ft. 3 in. × 6 ft. 6 in.	„	1	6	6
2 ft. 6 in. × 6 ft. 6 in.	„	1	8	6
2 ft. 9 in. × 6 ft. 6 in.	„	1	9	6

SUNDRIES

		£	s.	d.
Delivered London area.				
1 in. Wood Wool Slabs 6 ft. 0 in. × 2 ft. 0 in. in quantities of 1 ton (89 yds. to 1 ton)	per yd.		6	2
1½ in. do. (67 yds. to 1 ton)	„		8	0
2 in. do. (52 yds. to 1 ton)	„		9	9½
2½ in. do. (45 yds. to 1 ton)	„		11	3
3 in. do. (39 yds. to 1 ton)	„		12	7½
½ in. imported or home produced insulation Board, quantities over 5,000 sq. ft.	per 100 sq. ft.	2	2	6
¼ in. Hardboard do.	„	1	17	6
7/16 in. do. do.	„	2	4	6
2 in. Compressed Straw Slabs, roofing quality. 6 ft., 8 ft., 9 ft., 10 ft., and 12 ft. × 4 ft.				
50–100 yds.	per yd. sup.		11	4
101–250 yds.	„		10	10
251–750 yds.	„		10	1
Over 750 yds.	„		9	4
2 in. do. for partitions 4d. per yd. cheaper.				
1/8 in. Asbestos Flat Building Sheets...	„		4	3½
¼ in. do. do. do.	„		6	0
Roofing Felt 1-ply	„		1	9
do. 2-ply	„		2	2½
Best Scotch Glue in slabs	per ½ cwt.	5	3	9
do. pearl	„	5	3	9
Croid Glue	28 lb.	2	6	0
Impact Adhesive	per gall.	2	12	0
Cut Nails 3 in. (1-ton lots)	per ton	84	10	0
do. 4 in. and up (1-ton lots)	„	81	0	0
Wire Nails 3 in. (4-cwt. lots)	per cwt.	4	2	1
do. 4 in. and up (4-cwt. lots)	„	3	19	3

METALS

STEEL JOIST, ETC.

		£	s.	d.
Basis Joists— 6 in. × 5 in., 8 in. × 5 in., 8 in. × 6 in., 10 in. × 6 in., 12 in. × 6 in., plain cut to lengths delivered London area	per ton	47	15	0
Extra for sizes				
3 in. × 1¼ in. 4 in. × 1¼ in.	„		3	10	0
3 in. × 3 in.	„		2	10	0
4 in. × 3 in.	„		2	5	0
10 in. × 4½ in.	„		1	10	0
5 in. × 2½ in. 5 in. × 3 in.	„		1	15	0
4½ in. × 1½ in.	„		3	5	0
5 in. × 4½ in. 7 in. × 3½ in. 13 in. × 5 in. ...	„			15	0
6 in. × 3 in. 24 in. × 7½ in.	„		2	0	0
6 in. × 4½ in. 7 in. × 4 in. 8 in. × 4 in.	„		1	5	0
9 in. × 4 in. 10 in. × 5 in.					
12 in. × 5 in. 22 in. × 7 in.	„		1	0	0

METALS—*continued*

			£	s.	d.
9 in. × 7 in. 10 in. × 8 in. 12 in. × 8 in.		per ton		10	0
14 in. × 5½ in. 14 in. × 6 in. 14 in. × 8 in.					
15 in. × 5 in. 15 in. × 6 in. 16 in. × 6 in.					
16 in. × 8 in. 18 in. × 6 in. 18 in. × 7 in.					
18 in. × 8 in. 20 in. × 6½ in. 20 in. × 7½ in.		„		10	0
Steel angles average price		„	48	15	0
Steel tees average price		„	49	15	0
Fabricated work delivered London—					
R.S. Joists cut and fitted...		„	67	19	0
Compound girders		„	72	14	3
Stanchions		„	78	9	9
Compound stanchions		„	83	4	3
In Roof Work—Trusses and Purlins		„	93	19	6
Average prices not for awkward work.					
Angle cleats and ⅜ in., ½ in. and ⅝ in. bolts average price London area		per cwt.	5	10	0
Above prices joists etc. increased by 1·1%.					

Ferro-Concrete Bars and Fabric

Mild Steel Ferro-Concrete Bars British manufacture to BSS 785 ex. Mills. 1 in. diameter and upwards delivered nearest London station ...	per ton	40	10	0
do. do. ex. London Stock do. delivered London site	„	49	10	0
Extras—				
¼ in. diam....	per ton extra	8	12	6
⅜ in. do.	„	6	12	6
½ in. do.	„	4	12	6
⅝ in. do.	„	3	2	6
¾ in. do.	„	1	10	0
⅞ in. and 1 in. diam.	„		15	0
Above prices mild steel bars increased by 1·1%.				
Steel wire mesh reinforcing fabric to BSS 1221A.				
Ref. No. 106 ... ... 7.88 lbs.	per sq. yd.		5	2½
„ „ 109 ... ... 4.71 „	„		3	0½
„ „ 113 ... ... 1.83 „	„		1	8½
„ „ 122 ... ... 7.32 „	„		4	10½
„ „ 125 ... ... 4.32 „	„		2	10½

Mild Steel Tubes

Tubes to BSS 1387. Fittings BSS 1740.

Basic List Prices

		¼ in.	⅜ in.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
Tubes	per ft.	9½	10	1/–	1/2½	1/9	2/3	2/8	3/9
Bends	each	1/7	1/9	2/–	2/6	3/8	5/5	6/2	10/7
Elbows, square	„	1/8	1/10	2/2	2/6	3/–	4/4	5/2	8/6
do. round	„	1/10	2/–	2/4	2/10	3/4	4/8	5/8	9/4
Tees	„	2/–	2/2	2/6	3/2	3/8	5/–	6/2	10/2
Crosses... ...	„	4/4	4/8	5/6	6/6	8/2	11/–	13/2	21/–
Sockets, Plain	„	6	6	8	10	1/–	1/4	1/9	2/6
do. Diminished	„	8	10	1/–	1/2	1/6	2/–	2/8	4/–
Backnuts ...	„	4	4	6	7	10	1/–	1/4	2/2

Malleable Fittings

		¼ in.	⅜ in.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
Elbows, round	each	8½	8½	9½	1/2½	1/8½	2/7½	3/6	5/–
Tees	„	9½	9½	1/–	1/4½	2/–	2/9½	4/–	5/6
Crosses... ...	„	1/2½	1/2½	1/4½	2/–	2/9½	3/7½	5/2½	7/2½
Sockets... ...	„	5½	5½	7	9½	1/–	1/7½	2/2½	3/1½
Backnuts ...	„	3	3	3½	4½	5½	7½	10½	1/5½

Discounts from List prices as follows :—

Galvanised Tube—

	Under 1 ton	Over 1 ton	W.I. Fittings	Malleable Fittings
Light	–37 %	–38½%	Light –24½%	Malleable List
Medium	–33 ⅓%	–34½%	Heavy –20½%	–14%+40%
Heavy	–25½%	–27 %		
Black—				
Light	–47 %	–48½%	Light –30½%	Malleable List
Medium	–43 ⅓%	–44½%	Heavy –26½%	–14%
Heavy	–35½%	–37 %		

C.I. Half-Round Gutters

Delivered London per yd. in 6 ft. lengths.

	Gutters	Nozzles	Stop Ends
3 in.	4/4½	3/10	1/1
3½ in.	4/9	4/2	1/1
4 in.	6/1½	4/9	1/8
4½ in.	6/9	5/4	2/–
5 in.	7/6	5/9	2/4

C.I.O.G. Gutters

Per yd. in 6 ft. lengths :

	Gutters	Nozzles	Stop Ends
3 in.	5/7½	5/1	1/4
3½ in.	6/3½	5/1	1/8
4 in.	6/11½	5/4	2/–
4½ in.	7/6	6/1	2/4
5 in.	8/2½	7/–	2/8

C.I. Rain-Water Pipes

	Pipes	Bends	Branches
2 in.	9/4	4/9	6/10
2½ in.	9/4	5/4	9/2
3 in.	10/6	6/8	9/11
3½ in.	11/10	7/10	11/11
4 in.	13/9½	9/6	14/2

L.C.C. Coated Soil Pipes

2 in.	10/7	8/2	9/11
2½ in.	11/2	9/1	12/4
3 in.	12/6½	9/11	14/8
3½ in.	14/–½	12/4	17/1
4 in.	15/11½	13/10	20/3

Above prices for gutters, rain-water and soil pipes for under 5-cwt. lots only. Lots over 5 cwt. see List No. 3300, dated February 1, 1955, plus 32½% and tonnage allowance. 4-ton lots 5%, 2-ton lots 2½%.

L.C.C. Coated Drain Pipes

		£	s.	d.
4 in. diameter in 9 ft. lengths	per yd. run	1	11	1
6 in. do. do.	„	2	5	6
4 in. diameter bends	each	1	0	6
6 in. do. do.	„	2	14	9
4 in. diameter branches	„	1	16	6
6 in. do. do.	„	4	7	6
Above prices for any quantity but under 5 cwt. carriage extra.				

Pitch Fibre Drain Pipes

		£	s.	d.
2 in. diameter in 5 ft., 5 ft. 6 in. or 8 ft. lengths including couplings	per ft. run		1	6½
3 in. do.	„		1	10½
4 in. do.	„		2	6
5 in. do.	„		4	1½
6 in. do.	„		5	0½
4 in. diameter short radius ¼ bends	each		17	9
4 in. do. do. ⅛ bends	„		12	11
2 in. diameter 6 ft. radius bends (5 ft. lengths)	„		17	0
3 in. do. do. do.	„		19	8
4 in. do. do. do.	„	1	7	4
5 in. do. do. do.	„	2	4	0
6 in. do. do. do.	„	2	14	6
Above prices for loads of £60 and over. Loads £25 to £59 19s. 11d. Plus 10% Loads under £25 ... Plus 15%				

Asbestos Rain-Water Pipes and Fittings

All less 17½% discount.	2 in.	2½ in.	3 in.	4 in.
Pipes, 6 ft. lengths ... ... per yd.	4/7	4/10½	5/11	7/10
Shoes ... ... each	3/–	3/3	3/10	5/2
Single Branches ... ... „	4/8	5/6	6/7	9/2
Bends, squares or obtuse ... „	3/3	3/7	4/8	6/7
Swan Necks, 4½ in. proj.... „	3/7	4/8	5/2	7/3
do. 6 in. do. ... „	3/10	5/2	5/10	7/10

Asbestos O.G. Gutters and Fittings

		4 in.	4½ in.	5 in.	6 in.
Gutters, 6 ft. lengths ...	per yd.	4/4	4/9½	5/9	6/10½
Drop ends	each	3/6	4/–	4/9	5/5
Stop ends	„	1/1	1/2	1/3	1/5
Angles	„	3/7	4/1	5/–	5/10
Nozzles	„	3/6	4/–	4/9	5/–
Union Clips	„	1/9	2/1	2/6	2/11

Asbestos Half-Round Gutters and Fittings

	per	3 in.	4 in.	4½ in.	5 in.	6 in.
Gutters, 6 ft. lengths	yd.	3/0½	3/7½	3/8½	4/4½	6/1
Drop ends	each	2/6	3/–	3/3	3/7	5/2
Stop ends	„	1/–	1/1	1/2	1/3	1/5
Angles	„	2/10	3/3	3/7	3/10	5/2
Nozzles	„	2/6	3/–	3/3	3/7	5/2
Union Clips ...	„	1/3	1/4	1/5	1/7	2/5

	Per ton basis in London £	s.	d.
Iron—Staffordshire Crown Merchant Quality	52	17	6
Mild Steel Bars	47	18	0
Mild Steel Hoops	49	10	0

	Ex Merchant's Stock per ton Two-ton lots £	s.	d.
Soft Sheets C.R. and C.A.—			
20 gauge	63	0	0
24 gauge	65	10	6
26 gauge	68	11	0
Galvanised Corrugated Sheets, 6-ft. to 9-ft.—			
20 gauge	70	18	0
24 gauge	74	9	0
26 gauge	79	15	0
Galvanised Flat Sheets C.R. and C.A.—			
20 gauge	72	8	6
24 gauge	75	19	0
26 gauge	81	5	0

ALUMINIUM AND ALUMINIUM ALLOYS

(Base Prices)		£	s.	d.
Sheet BS 1740 S1C 18 SWG (36 in. wide)... ...	per lb.		3	0½
Sheet BS 1470 NS3 Utility 18 SWG (36 in. wide)	„		2	11½
Coiled strip BS 1470 S1C 18 SWG (24 in. wide)	„		2	11½
Coiled strip BS 1470 NS3 Utility 18 SWG (24 in. wide)...	„		2	11
Coiled strip high purity, 22 SWG (12 in. wide)	„		3	2
Corrugated sheet BS 1470 NS3 Circular Profile 8 ft. × 32 in. × 20 SWG	per sheet	1	14	1
Corrugated sheet BS 1470 NS3 Industrial Profile 8 ft. × 31½ in. × 20 SWG	„	1	19	10
Corrugated sheet BS 1470 NS3 Mansard Profile 8 ft. × 31½ in. × 20 SWG	„	1	13	1
Extruded section BS 1476 E1C simple moulding	per lb.		2	10½
Extruded section BS 1476 E1C 1 in. diam. round	„		2	8
Extruded section BS 1476 HE19WP simple angle	„		3	2
Extruded section BS 1476 HE19WP 1 in. diam. round	„		3	1
Tubing BS 1471 T1C 1½ in. O/D × 20 SWG ...	„		4	8
Tubing BS 1471 HT19WP 1½ in. O/D × 20 SWG	„		6	3

PLUMBERS' BRASS WORK, etc.

Delivered in London area.

All per dozen	B.S.S. ¼ in.	⅜ in.	1 in.	1¼ in.	1½ in.	2 in.
Screwdown bib cocks Crutch head for iron...	87/–	128/–	—	—	—	—
Toilet bib cocks for iron ...	109/–	158/5	—	—	—	—

PLUMBERS' BRASS WORK, etc.—*continued*

All per dozen	¾ in.	⅞ in.	1 in.	1¼ in.	1½ in.	2 in.
Screwdownstopcocksforiron	66/–	95/9	188/–	363/–	522/6	917/6
do. with two unions for lead	89/–	132/–	234/4	472/–	623/6	1,389/6
Double nut boiler screws ...	18/8	26/5	47/6	48/6	67/–	93/6
Heavy Croydon ball valves	77/–	193/6	312/5	568/8	734/10	—
Plumbers' union brass lead to iron	19/6	23/6	38/6	52/10	70/6	165/–
	1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.
Caps and Screws	33/–	40/8	59/6	92/5	118/10	155/3
Brass Sleeves	—	31/11	31/11	56/2	74/10	91/5
		1½×6 lb.	1½×6 lb.	2×7 lb.		3×7 lb.
Lead P. trap with brass cleaning screws		68/6	85/6	137/–		233/9
Lead S. trap do. do.		82/9	102/9	168/3		302/3

Solder :			s.	d.
Plumbers' ...	1 cwt. lots	320/–	14 lb. lots per lb.	3	7
Tinmen's	„ „	404/–	„ „ „	4	5
Blow pipe ...	„ „	407/–	„ „ „	4	6

Copper Tubes and Sheets

Copper tubes BSS 659/1944 on the basic price of 27¾d. per lb. plus gauge and manufacturing extras as follows. Minimum quantities, 10 cwt.

	Extra d.	Total per lb. d.	Approx. per ft. d.
¼ in. × 19 gauge	16¾	43¾	11¾
⅜ in. × 19 „	14¾	41¾	16½
1 in. × 18 „	12¾	40½	25
1¼ in. × 18 „	12¾	39¾	30
1½ in. × 18 „	12¾	39¾	36
2 in. × 17 „	13¾	41¾	57¾

Small Quantity extras :

10 cwts. to 5 cwts.	plus ½d. per lb.
5 cwts. to 2 cwts.	„ 1d. „
2 cwts. to 1 cwt.	„ 2d. „

Rolled Copper sheets up to 48 in. wide, basic price plus gauge and manufacturing extras	£ s. d. 267 0 0

Zinc

Sheet Zinc, 10 gauge (25 SWG), 5 cwt. lots upwards	per cwt.	£ s. d. 8 6 6
„ „ 12 gauge (23 SWG), „ „ „ „	„	8 4 0
„ „ 14 gauge (21 SWG), „ „ „ „	„	8 2 9

Brass Tube

Brass tubes, basic price, plus gauge and manufacturing extras	per lb.	1 9½

LEAD SHEET AND PIPES

Basis selling price to one address in London or Home Counties :

		£ s. d.
Lead Sheet, English, 3½ lb. substance and upwards	per ton	104 15 0
„ Water Pipe, in coils	„	107 0 0
Lead Soil Pipe, 10 ft. or over 2 in. to 4 in. in dia.	„	108 10 0
„ „ „ over 4 in. dia.	„	110 10 0
„ Gas or Untinned Compo pipe...	„	108 10 0

5 cwt. lots and over less 6d. per cwt. off basic prices.
Extras over Basis for quantities under 5 cwt. :

3 cwt. and under 5 cwt.	per cwt.	4 0
1 cwt. do. 3 cwt.	„	6 0

Smaller quantities than 1 cwt. priced specially.
Supplying sheet lead and lead pipes to less than basis weights and cutting to sizes less than basis charged extra according to current trade schedule.
Allowance for Old Lead, collected, £53 0s. 0d. per ton weighed at buyer's works.

PLASTER, etc.

		£ s. d.
Coarse Pink in 1-ton loads and over delivered on site	per ton	8 11 3
do. White do. do. do.	„	9 0 9
Sirapite Coarse BSS 1191 Class C	do. „	9 2 9
do. Fine do. do. do.	„	9 10 6
do. Browning BSS 1191 Class B	do. „	9 2 9
do. Board Finish	do. „	9 2 9
Blue Lias Lime, in 6-ton loads	„	6 17 6
Hydrated Lime (Grey) in 6-ton loads	„	6 2 0
do. (White) do.	„	6 12 0
Lump Lime (Grey) do.	„	5 19 0
do. (White) do.	„	6 6 6
White Keen's or Parian Cement, in 1-ton loads ...	„	12 7 6
Pink Keen's or Parian Cement, in 1-ton loads ...	„	12 2 3
Granite Chips, in 6-ton loads	„	2 6 9
Hair	per cwt.	4 17 6
Gypsum Plaster Lath or Base Board, ½ in. thick, 600 yds. and over in one delivery. Delivered site	per yd.	2 2½
1,200 yds.	„	2 1½
do. Insulating do. ½ in. thick, 600 yds. and over in one delivery. Delivered site	„	2 8
1,200 yds.	„	2 7
Gypsum Plaster Wall Boards, 3 and 4 ft. wide 6 to 12 ft., ½ in. thick, 600 yds. and over in one delivery. Delivered site	„	2 5½
1,200 yds.	„	2 4½
do. Insulating do. ½ in. thick, 600 yds. and over in one delivery. Delivered site	„	2 11
1,200 yds.	„	2 10

PAINTS AND DISTEMPER

Delivered London area.		£ s. d.
Ceiling Distemper	per cwt.	1 7 6
Washable Distemper	„	5 18 0
Gloss Paint	per gal.	2 18 0
Super Snowcem cement paint (in 1 cwt. drums) ...	per cwt.	5 0 0

Lead Products and Oils

		£ s. d.
Ground White Lead, in 1 cwt. kegs	per cwt.	8 7 6
Genuine White Lead Paint, 1-19 gal. lots in 1 gal. tins	per gal.	3 6 6
Genuine Red Lead, Dry, (1 cwt. lots)	per cwt.	6 17 0
Genuine Linseed Oil Putty, 1 cwt. keg	„	2 13 6
Size XD quality 28 lb.	per tin	9 0
Raw Linseed Oil (5 gal.) drums extra	per gal.	16 9
Boiled Linseed Oil (5 gal.) do.	„	17 8

Sundries

		£ s. d.
Turpentine substitute (5 gal.) drums extra ...	„	5 4½
do. do. (40 gal.) do.	„	4 8½
Solignum, Brown (5 gal. cans) Exterior	„	10 0
Creosote (40 gal. barrels)	„	2 3
Paste Powder (1 lb. packets)	per lb.	2 4
White Lining Paper	per piece	1 4

VARNISHES, etc.

Delivered London area.		£ s. d.
Oak Varnish, Outside or Inside	per gal.	2 0 0
Oak, Pale Copal do. do.	„	2 0 0
Hard Drying Oak for Inside	„	2 5 0
Crystal Paper Varnish do.	„	2 8 0
Eggshell Flat Varnish do.	„	2 2 0
Finest Carriage Varnish	„	2 7 0
Front Door Varnish	„	2 4 0
Japan Gold Size	„	1 12 0
Black Japan	„	1 16 0
Brunswick Black	„	1 12 0
Berlin Black	„	1 10 0
Terebene	„	1 12 0
Knotting (1 gal. bottles free)	„	1 15 0
French and Brush Polish (do.)...	„	1 15 0

GLASS

Delivered London area.		s. d.
18 oz. Sheet Glass Ordinary Glazing Quality— Cut Sizes...	per ft. sup.	10
24 oz. do. do. do. do.	„	1 0½
26 oz. do. do. do. do.	„	1 3
32 oz. do. do. do. do.	„	1 7½
¼ in. Rolled Plate...	„	1 3½
¼ in. Rolled and Rough Cast...	„	1 6½
⅜ in. do. do.	„	1 7½
½ in. Figured Rolled and Cathedral, Standard patterns— White Group 1	„	1 3½
do. Group 2	„	1 9½
do. Standard Tints	„	2 1½
do. Special Tints	„	7 3
¼ in. Pinstripe, Hammerstripe, Reeded, Reedlyte and Luminating Group 3	„	1 8½
¼ in. Wired Cast up to 50 in.	„	1 10½
¼ in. do. do. 50 in. to 72 in.	„	2 2½
¼ in. Georgian Wired Cast	„	1 11

Hollow Glass Blocks—

P.B.2	Cross reeded	5½×5½×3½ in.	each	3 9
P.B.3	Broad reeded	7½×7½×3½ in.	„	5 9
P.B.32	Cross reeded	7½×7½×3½ in.	„	5 9
P.B.4	Prismatic	7½×7½×3½ in.	„	6 6
P.B.5	Flemish	7½×7½×3½ in.	„	5 9
P.B.6	Boomerang	7½×7½×3½ in.	„	6 6

Half Size Blocks—

P.B.32	Cross reeded	7½×3½×3½ in.	„	4 10

Radiused Corner Blocks to match up with—

P.B.2	Cross reeded		„	8 1
P.B.3	Broad reeded		„	9 8
P.B.32	Cross reeded		„	9 8

P.B.2, P.B.3, P.B.32 are also supplied in Light Diffusing Blocks at same price.

¼ in. Polished Plate Glass, G.G. quality—		
In plates not exceeding 2 ft. sup.	per ft. sup.	4 7
„ „ „ 5 ft. sup.	„	5 7
„ „ „ 45 ft. sup.	„	7 6
„ „ „ 100 ft. sup.	„	7 6
¼ in. Polished Plate, extra sizes, i.e., plates exceeding 100 ft. sup. or 160 in. one way or 96 in. both ways. G.G. quality—Not exceeding 135 ft. sup. or 240 in. one way or 130 in. both ways ...	„	11 4
Not exceeding 180 ft. sup. or do.	„	15 0

Plates exceeding 180 ft. sup. prices on application.
Substances other than ¼ in. Polished Plate at Special Prices.
Quantity Tariff—Sheet and Sundry Glass.
The following prices apply to minimum quantities of one size and one pattern delivered by the manufacturer to one site at one time.

Description of Glass—	Minimum quantity	per ft. sup. s. d.
18 oz. sheet O.Q.	3,000	7½
24 oz. „ „	2,000	9½
26 oz. „ „	2,000	11½
32 oz. „ „	2,000	1 3½
¼ in. Rolled Plate...	1,000	10½
½ in. Figured Rolled and Cathedral Standard Patterns, White Group 1	1,000	10½
do. Group 2	1,000	1 2½
¼ in. Pinstripe, Hammerstripe, Reeded, Luminating and Spotlyte Group 3	1,000	1 2½
⅜ in. Rolled Plate or Rough Cast	2,000	1 2
¼ in. do. do.	2,000	1 2½
¼ in. Wired Cast, Hexagonal up to 50 in. ...	2,000	1 5
¼ in. do. do. do 50 in. to 72 in. ...	2,000	1 9
¼ in. Georgian Wired Cast	2,000	1 5½

THE BUILDER RATES OF WAGES

AS FROM FEBRUARY 6th., 1961. (Every endeavour is made to ensure accuracy but we cannot be responsible for errors)

1. Craftsmen and Labourers.

Region	Craftsmen	Labourers
	s. d.	s. d.
England & Wales (Grade A) ...	5 0	4 4½
London	5 1½	4 6
Liverpool and District ...	5 1½	4 6
Scotland... ...	5 0	4 4½

2. Apprentices.

Age	Per cent. of Craft Rate	London and Liverpool Dist.	England, Wales
		s. d.	s. d.
15	25	1 3½	1 3
16	33½	1 8½	1 8
17	50	2 6½	2 6
18	62½	3 2½	3 1½
19	75	3 10½	3 9
20	87½	4 6	4 4½

3. Young Male Labourers.

Age	Per cent. of Craft Rate	London and Liverpool Dist.	England, Wales and Scotland
		s. d.	s. d.
15	33½	1 6	1 5½
16	45	2 0½	1 11½
17	66½	3 0	2 11
18	100	4 6	4 4½

NORTHERN IRELAND is not included; rates fluctuate so much from district to district that reference should be made to local offices.
WATCHMEN.—The rates per shift for watchmen engaged on building sites is 27s. 6d. in London and Liverpool District, and 26s. 3d. in the provinces.
FEMALE OPERATIVES.—In all districts throughout the country except in Scotland the rate of wages for women, aged 19 and over, engaged in craft processes is 4s. 1½d. per hour. Women engaged on work other than craft processes, 3s. 9½d. per hour. In Scotland the rate for the woman craftsman is 4s. 4½d. after a probationary period, and the woman labourer, 3s. 10½d.

New Companies

THE FOLLOWING NEW COMPANIES, registered in England, have been announced by Jordan and Sons, Ltd., company registration agents.

CROWNHILL CONSTRUCTION CO. LTD.—Regd. August 18, 1961. Newlands, The Drive, Wembley, Mdx. Secy.: D. J. Henwood. Bldrs. and contrs., etc. Nom. cap.: £1,000.

HUGHES & MCGUINNESS LTD.—Regd. August 18, 1961. 28 Hollybank-rd., Birkenhead. Secy.: J. A. F. Hughes. Bldrs., etc. Nom. cap.: £500.

MAURAY DEVELOPMENTS LTD.—Regd. August 18, 1961. Bel Fiori, Perranporth, Cornwall. Secy.: Jolan Horne. Bldrs., etc. Nom. cap.: £100.

ETON AVENUE DEVELOPMENTS LTD.—Regd. August 18, 1961. 3 Grosvenor-rd., Ilford. Secy.: Amy Leach. Nom. cap.: £100.

CLAPTON CONSTRUCTION & INVESTMENT COMPANY LTD.—Regd. August 18, 1961. 26 Lea Bridge-rd., E5. Secy.: Ivy L. Hanmer. Nom. cap.: £100.

STIRLAND-BOND (CONSTRUCTION) LTD.—Regd. August 18, 1961. Llandaff-chmbrs., Regent-st., Cambridge. Bldrs., etc. Nom. cap.: £1,000. Sub.: Stanley J. Green, Wisbech (solr.).

KEMPACK DEVELOPMENT COMPANY LTD.—Regd. August 18, 1961. 47 Wote-st., Basingstoke, Hants. Secy.: L. F. Hooper. Nom. cap.: £100.

MEOPHAM CONSTRUCTION LTD.—Regd. August 18, 1961. 13 Harland-ave., Sidcup, Kent. Secy.: Lilian B. Thompson. Bldrs. and decrs., etc. Nom. cap.: £100.

MYLROIE BROS. LTD.—Regd. August 18, 1961. 24 Crompton-ave., Blackpool. Secy.: P. Mylroie. Bldrs., etc. Nom. cap.: £500.

COURTFIELD CONSTRUCTION COMPANY LTD.—Regd. August 21, 1961. 15 Railway-rd., Ormskirk. Secy.: A. Ingham. Bldrs., etc. Nom. cap.: £1,000.

CALEDONIAN CRAFT-WORK LTD.—Regd. August 21, 1961. 552 Caledonian-rd., N7. Secy.: C. L. D. Rasini. Plasterers, bldrs., etc. Nom. cap.: £1,000.

LUCAS DEVELOPMENTS (GODALMING) LTD.—Regd. August 21, 1961. 4 Wharf-st., Godalming, Surrey. Bldrs. and contrs., etc. Nom. cap.: £2,000. Dir.: Stephen F. Lucas, New Dawn, Gasden-la., Witley, Surrey.

J. MASON (BUILDERS) LTD.—Regd. August 21, 1961. 9 Liverpool-gdns., Worthing. Secy.: Rose Mason. Nom. cap.: £1,000.

RAY WATSON LTD.—Regd. August 21, 1961. 15 North View-st., Keighley, Yorks. Secy.: J. A. T. Burton. Bldrs. and contrs., etc. Nom. cap.: £3,000.

SNOWDON BUILDING COMPANY LTD.—Regd. August 22, 1961. District Bank-chmbrs., Church-st., Eccles, Lancs. Secy.: M. W. Faulkner. Nom. cap.: £500.

M. F. CONSTRUCTION COMPANY LTD.—Regd. August 22, 1961. 17 New Kings-rd., SW6. Secy.: W. Grant. Bldrs., etc. Nom. cap.: £100.

G. E. TURNER (BUILDERS) LTD.—Regd. August 22, 1961. 210 Stourbridge-rd., Kidderminster, Worcs. Secy.: Ellen F. Turner. Nom. cap.: £3,000.

EFFGEE DEVELOPMENTS LTD.—Regd. August 23, 1961. Gloucester-st., Wotton-under-Edge, Glos. Secy.: Hannah F. Grimes. Bldrs., etc. Nom. cap.: £1,000.

WALTER F. CHILD & SON LTD.—Regd. August 23, 1961. 101 Haig-ave., Rochester, Kent. Secy.: Jessie M. Child. To acq. the bus. of a bldr. and decr. at Rochester, etc. Nom. cap.: £1,000.

CASA CONSTRUCTIONS (PORTSLADE) LTD.—Regd. August 23, 1961. 11 Station-rd., Portslade by Sea, Sussex. Secy.: W. E. Phillips. Bldrs., etc. Nom. cap.: £200.

FERIA CONSTRUCTIONS LTD.—Other details similar to Casa Constructions (Portslade) Ltd.

SALDAR CONSTRUCTIONS LTD.—Other details similar to Casa Constructions (Portslade) Ltd.

C. J. NORRIS CONSTRUCTIONS LTD.—Regd. August 23, 1961. 27 Grange-rd., Tongham, Surrey. Secy.: Veronica Norris. Bldrs., etc. Nom. cap.: £100.

OCKFORD BUILDERS LTD.—Regd. August 24, 1961. 74 High-st., Godalming, Surrey. Secy.: E. C. Sweatman. Nom. cap.: £1,000.

New Industrial Chimneys

Recommendations on Height and Design

THE AIR POLLUTION PANEL of the Federation of British Industries at its meeting on November 11, 1958, appointed a Working Party to make recommendations on the height of new chimneys with particular reference to Section 10 of the Clean Air Act.

The Working Party's main recommendations, contained in a handbook which has just been published, refer to industrial boiler plants with an output of 5,000-33,000 lb./hr. steam at maximum continuous rating. Recommendations are also made in respect of larger plants up to an aggregate steam capacity of 450,000 lb./hr. None of the recommendations refers to washed gas effluents.

It is also recommended that an FBI Working Party should make a survey early in 1963 of the conditions around new chimneys built to these recommendations to check whether any modifications to the proposals are desirable.

Copies of the handbook, 'Height and Design of New Chimneys,' are obtainable from FBI Print and Publications, 21 Tothill-street, London, SW1, price 4s. post free (excluding airmail).

Recent British Trade Marks

THE FOLLOWING PARTICULARS, which are extracts from the 'Trade Marks Journal,' are reproduced by kind permission of HM Stationery Office. The 'Trade Marks Journal' may be obtained from the Patent Office, annual subscription £5

CAM-ONE-KOTE: B810736. Coating compositions in the nature of paint. Alex. Cameron & Sons Ltd., Hudson-road., Sunderland.

KAVONA: 818570. Paints. Keystone Paint & Varnish Co., Ltd., Hindley, Lancs.

ACRYPOL: 819213. Paints, varnishes and lacquers, all containing acrylic resins. Padiham Paints, Britannia Mill, Ribble-street, Padiham, Lancs.

AQUOL: 818163. Paints, varnishes, enamels, wood preservatives, etc. Griffiths Bros., & Co., London, Ltd., 59 Macks-road, London, SE16.

JEL: 812687. Prefabricated buildings (not being fixed metal structures) and parts thereof included in class 19. Jel Holdings Ltd., Green-lane, Hounslow, Middlesex.

CONSALAC: 814573. Stove-enamel faced wallboard made of hardboard. Continental Hardwoods Ltd., 87 Regent-street, W1.

POLYSTAINA: 807207. Stains. Polycell Products Ltd., 73 Highgate-road, London, NW5.

NOLON: 816519. Fibre boards included in class 19. Katrinefors Aktibeolag, Mariestad, Skaraborg, Sweden.

ARTONEX: 808603. Paints, lacquers, varnishes, anti-rust preparations and wood preservatives. Fabriek van Compositieverven CV, Rotterdamsche Weg 134, Delft, Holland.

FLOWLINE: B817172. Paints, lacquers, enamels and varnishes. Pinchin Johnson & Associates Ltd., 4 Carlton-gardens, SW1.

SANDTEX: 818236. Paints, varnishes, enamels, distempers, japans, etc. Cement Marketing Co., Ltd., Portland House, Tothill-street, London, SW1.

FASLOK: B814087. Rods, tubes and channel sections, all of common metal and for use in building operations. MacAndrews & Forbes Ltd., 2 Caxton-street, SW1.

CORYCRETE: 812998. Concrete and mixtures for making concrete, and manufactures therefrom for building or decoration. Wm. Cory & Son, Ltd., Cory Buildings, Fenchurch-street, EC3.

NEWTHERMITE: B813232. Clinker blocks for building. Newlay Concretes Ltd., Thornhill Works, Calder-road, Ravensthorpe, Dewsbury, Yorks.

FAIRTEX: 814360. Slabs for use in building and construction being made wholly or principally of wood wool and incorporating a binding agent. Gyproc Products Ltd., Westfield, Upper Singlewell-road, Gravesend, Kent.

Maintenance of Public Buildings by Direct Labour

Advantages of Local Knowledge Gained Through Experience

The advantages of using a direct labour force with a nucleus of skilled tradesmen and foremen to carry out the repair and maintenance of commercial type and public buildings within the jurisdiction of a local authority were explained in a paper submitted by Mr. J. Ellison, MInstWHS, ARSH, to the thirteenth annual conference of the Institute of Works and Highways Superintendents at Lytham St. Annes on September 8. Some extracts from Mr. Ellison's paper, 'The Maintenance of Public Buildings Within a Local Authority,' are given below.

IN A NUMBER of local authorities the designation of 'works superintendent' embodies within the framework of its duties a variety of separate, distinctly individual types of works and should the engineer, as the chief officer, control both the building and civil engineering sides within the authority, the maintenance of buildings is not infrequently carried out by a direct labour force under the control of the superintendent. Conversely, if the building works should be controlled by the architect, in a separate department, he may, at his discretion, delegate the maintenace and alteration works to the engineer's department direct labour section.

Some of these works may be the subject of competitive tender either by reason of their scope and size, or because of the desire of the engineer or the council to test the efficiency of the direct labour organisation from time to time.

Unlike most works carried out under a specific department and committee, the public buildings within an authority come under different committees, each with its own particular interest in any one or more of these buildings. For this reason it is inevitable that strict cost control must be exercised throughout the course of the maintenance works, and, apart from certain circumstances beyond the control of any parties concerned (e.g., dry rot), the cost of any job must not exceed the estimated or allocated expenditure.

The labour force required to carry out this type of work efficiently will vary according to the size of the authority and the number of buildings involved, but will, in any case, consist of a nucleus of highly skilled and reliable building tradesmen around which the rest of the section must operate under the direction of general trades foremen.

The general foreman is normally recruited from the joinery and carpentry trade because he is considered to be a more versatile member of the building industry, mainly, I think, because of his close contact during his training and experience with most of the other trades.

Apprenticeship Scheme

Apart from the employment of experienced tradesmen, however, the apprenticeship scheme ensures that the right type of tradesman does progressively emerge to take his place ultimately in the ranks of the qualified tradesmen. The variety of work also ensures that the apprentice receives an excellent all-round practical training, with supplementary technical training during his day release and evening classes at the local technical college.

Whilst the experience gained during apprenticeship is of an all-round character, involving construction, reconstruction, general maintenance, benchwork, and, in the case of joiners, the use of wood-working machinery, I feel that, providing the facilities exist within the local authority, arrangements might be made with the department engaged on the construction of new houses, etc., to further the experience of the apprentice by a temporary transfer to this department for a period during the last year of his apprenticeship.

Money Saved

It is natural to assume that as a general rule the maintenance works are related to an established building, but whilst work may be required on the actual building fabric, there may also be certain new items requiring manufacture and, largely to conform to the existing architectural or interior construction, these items must of necessity be purpose made. A tradesman, although working on the building fabric, could be instructed also to carry out the manufacture of the particular new item or items required and it is here that trade skill and versatility are most required.

Public building maintenance carried out by direct labour has often proved to be of financial benefit to the local authority. Money may be saved on works merely by the local knowledge of the supervisory staff or of the workmen concerned of the construction of a particular building. This knowledge can only be gained through years of experience and by carrying out works within that building from time to time.

A faulty plumbing system, for example, involving complete renewal, may be dealt with more cheaply and efficiently by direct labour through an intimate knowledge of the pipe runs and the easiest route from one part of the building to another, than by any contractor submitting a price through bills of quantities, plans and specifications.

There are times, of course, when direct labour has a comparatively free hand. This is when certain works are required, and little or no knowledge of the structural details are available. I remember such an instance where works estimated to cost £8,000 were effectively completed by direct labour for little over £2,000, and I have no doubt that had sufficient data been available, details would have been prepared and competitive tenders invited for the execution of the works.

Where the architectural section of a local authority is controlled by the engineer, most, if not all, of the maintenance works within that authority are carried out by the direct labour building section, the estimated cost of the works being first prepared by the architectural section and approved by the committee responsible for the control of the building. This arrangement appears to have much to commend it, as strict liaison can be maintained and any difficulties overcome prior to the commencement of the works, which in turn promotes good departmental relations.

Under this same system, however, I have been asked to submit a price to the chief architectural assistant for a proposed plumbing system, and as the price submitted was within the estimate prepared by the architectural section, the instruction to proceed with the job was given and, incidentally, completed within the price submitted.

This, too, is a sound arrangement, since the engineer and the controlling committee are assured of the efficiency of the direct labour section. It is also possible, within reason, to assess the labour requirements of the section throughout the year from the proposed maintenance programme prepared by the architectural section.

Competitive Tenders

There appears to be an increasing tendency for individual committees to request that certain works, before being carried out, should be the subject of competitive tenders. Where works involving large sums of money are under consideration, then healthy competition may be desirable and financially advantageous. On the other hand this competition phobia can assume unreasonable proportions, when, due to contractors' prices being accepted for works of a minor nature, the established direct labour force in an authority may ultimately be faced with redundancy.

As an example, I recall the occasion where maintenance involved some major dry rot repairs, the reduction in height of the towers, with the attendant remedial works, also miscellaneous roofing repairs, etc., to two churches in a cemetery. The works as a whole were allocated to the direct labour section. Towards the completion, however, tenders were invited for the interior decoration works in both cases and for a pair of external teak doors and frame in one case. These three items were ultimately carried out by the contractor in spite of the main and dirtiest part of the works having been carried out by direct labour.

Such an arrangement may or may not effect a financial saving, but it certainly does nothing towards improving departmental morale.

Land and Site Sales

Schemes Progress Despite Mortgage Difficulties

FROM A PROPERTY CORRESPONDENT

SITE SALES, and schemes on sites already acquired, still progress buoyantly despite increasing financial stringency, expected to depress builders and purchasers. The 'little squeeze' may put the brake on next year's building, but big developments still go forward, as instance the new St. Mary Axe £300,000 office block, and the 600 tower flats costing £1½m. in Roman-road, Bethnal Green, both by Wates Ltd. The same firm have obtained modified planning permission to build a large number of houses and shops on part of Hurst Park racecourse.

The important Station Hotel site at Chatham, Kent, is to be redeveloped with a new hotel and block of flats, while not far away, the Grand Cinema, Gillingham, is also to be redeveloped. The Ronald Lyon Group are erecting an eight-storey shop and office block, to rise 100 ft. above the Broadway, opposite the station. Mr. Hilary Halpern is the architect responsible for a similar big new scheme planned for New Malden, Surrey, and for an American style open square shopping precinct with the stores linked by canopies, at Welling, Kent.

Sitefinders Ltd. report the sale of the seven-acre Frogwell Poultry Farm, Chippenham, with residential planning permission, to A. J. Wait & Co. Ltd., the New Malden builders, for over £25,000; also Pitfield House, the Hog's Back, with two acres, subject to planning permission for a motel, and 165-166 London-road, Camberley, for redevelopment.

Two 80-ft. building plots on Lower Shelton-road, Marston, Beds., were sold by Stonebanks & Co. for £950; while Senior & Godwin sold the 2½-acre building site at Glue Hill, Westfields, Dorset, for £1,000. Building land (with outline planning permission), at Newlands-ave., Pemberton, Wigan (10,000 sq. yd.) was sold by J. N. Henderson, the auctibneer, at £2,500.

Dale-lane, Heckmondwike, Yorks., building land with planning permission for 26 bungalows and a shop, was disposed of by David Waterhouse & Co. for £4,300. Two half-acre sites and one of 1½ acres (the latter including an old house for demolition), The Round House, Lavton, Wilts., realised respectively £250, £270 and £300 at Hobbs & Chambers' sale.

The Claremont Hotel, Victoria-ave., Harrogate, has changed hands for £38,000 (site area 2,750 sq. yd.), and there is outline planning approval for conversion to offices or flats.

Building sites of three acres, half acre and 2½ acres, at The Rectory, Risby, Bury St. Edmunds, were sold by H. C. Wolton & Son for £1,800, £700 and £3,800. A dilapidated building and 85-ft. plot on Scottals-lane, Hampstead Norris, Berks., fetched £650.

The big sale of land by Hobbs & Chambers of building sites in Down Ampney, near Cirencester, resulted in three ¼-acre sites fetching £300, £325 and £325; five ¼-acre sites from £200 to £220; and one ⅛-acre plot, £200, while the buildings for redevelopment with gardens, 12 to 15 and 34-35 Down Ampney realised £1,610.

Incomes and House Prices

The Co-operative Permanent Building Society report that, in the first six months of this year, new houses cost on average 7 per cent more than before, while existing house prices rose by 6 per cent. Average price of new houses in the London area was £3,550; elsewhere, £3,150, but in the North-East, around £2,350.

If the Building Societies Association prediction of a possible further rise in house-loan interest rates is fulfilled, it will mean that to obtain a maximum advance on a new home in the London area, the purchaser will have to show an income of around £1,250 p.a., with comparative figures for the other areas of about £1,100 p.a. and £825 p.a. Will builders feel confident of being able to continue to find ready buyers with high enough incomes to be able to finance their purchase of new properties?

Report on Management Education

A REPORT has been published by the FBI, from 21 Tothill-street, London, SW1 (price 10s. post free), of the conference entitled 'Stocktaking on Management Education' which was held in April. The subjects of the lectures and discussions included 'The University Approach to Management Development' and 'Management Training in the Technical College.'

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News in Brief

Architects for Power Station

ARCHITECTS' DESIGN GROUP, of Nottingham (Gordon Graham, Rex Savidge, Robert Cullen, John Pike), have been appointed executive architects for the 2000 megawatt coal-fired power station to be built at West Burton in the north of Nottinghamshire. The station, which will be the largest in Europe, has been commissioned by the Central Electricity Generating Board and the first 500 megawatt set is scheduled to come into operation in 1956. Overall responsibility for the project rests with the Northern Project Group of the Central Electricity Generating Board, with Messrs. Merz and McLellan of London and Newcastle acting as consulting engineers for the building and civil engineering works. Derek Lovejoy Associates of Caterham have been retained as landscape consultants.

Management for Productivity

AN INTERNATIONAL SURVEY of the management and function of design departments and drawing offices in the mechanical and electrical engineering industries is being carried out simultaneously for OEEC in nine countries, Austria, Belgium, France, West Germany, Italy, The Netherlands, Portugal, Sweden and the United Kingdom. The British report is being prepared, at the request of the Board of Trade, by the British Institute of Management in conjunction with the British Productivity Council. The results will be forwarded to Paris where they will be studied and analysed by a team of specialists that will include the BIM representative, Mr. B. H. Dyson, MIMechE, formerly director and general manager for overseas production of Hoover, Ltd.

Company News

MELLOWES & COMPANY have declared an interim dividend on the ordinary stock of the company of 4½ per cent (less tax).

TAYLOR WOODROW LTD. recommend the payment of an interim dividend of 4½ per share (less tax) in respect of the year ended December 31, 1961, on the ordinary capital of the company.

THE AUSTIN-HALL GROUP recommend a final dividend of 12½ per cent (less tax) on the ordinary shares of the company for the year ended March 31, 1961.

An offer to the public of shares in WALKER CROSWELLER AND CO. LTD., Cheltenham, has been announced.

Personal Column

MR. W. D. COXON has left London for Oslo on a tour series which will take him from Scandinavia to West Africa. Mr. Coxson, export manager of Quickset Water Sealers Ltd. (one of Cementation Group of companies), is to conduct a survey of the market in Norway and Denmark, and plans to appoint agents in both countries.

WILLIAMS AND WILLIAMS LTD., metal windows manufacturers of Chester, has appointed MR. J. F. WILKINSON to be the company's new general manager of the Roften works, Hooton; MR. L. A. L. BROWN becomes deputy general manager.

MR. R. H. DENT, deputy chairman and managing director of The Cape Asbestos Company Ltd., has been elected chairman of the company's subsidiary — Cape Building Products Ltd.

MR. R. C. HARRISON and MR. J. W. PARKER have been appointed special directors of Higgs and Hill Ltd.

Technicalia

*** Books noted in these columns may be obtained on application to the Book Dept., 'The Builder,' 4 Catherine-street, Aldwych, WC2. Cash (to include 9d. postage on books to the value of 10s., and 1s. 6d. over 10s.) should accompany the order.*

BUILDING CONTRACT VARIATIONS AND FINAL ACCOUNTS. By G. Chrystal-Smith. (London: George Newnes Ltd.) Price 35s. net.

THERE MUST BE many a student of builders' quantities who has been frustrated by the lack of textbook writing on his subject beyond the bill of quantities stage. Chrystal-Smith has rectified this in his book, which begins with the first variation order and ends with the final account. He supposes that a private school is to be built for a contract amount of £86,451, and that eighteen variation orders are issued. Drawings are given for these variations, the quantities are taken off and then billed. The prices for the variations and material price fluctuations are dealt with, and the problems of provisional and prime cost sums explained. There are examples of dayworks, interim certificates and final accounts.

There are two further chapters, one of which explains the procedure on contracts without quantities dealing with both a new house and with alterations and repairs. The other includes examination papers of the IAAS and IQS. The author has presumed a prior knowledge of quantities up to the time when the contract is arranged, from which point this book is a most proficient guide.

HOT WATER SUPPLY, DESIGN AND PRACTICE. By J. J. Barton. (London: George Newnes Ltd.) Price 25s. net.

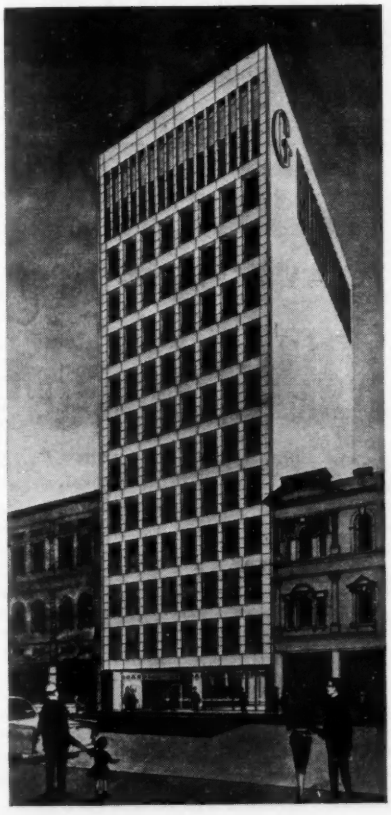
IT IS ALWAYS EASIER to understand something if the information is imparted by means of an example instead of tedious explanation, and in a textbook if the same example can be continued for the whole book a new interest is added to the exercise. In this book the author has designed hot water systems for a girls' hostel, a sports pavilion and a secondary school. Each of these has different needs and requires careful planning. Mr. Barton takes the reader through the various stages in the design in a way which is easy to understand and entertaining to follow. Having covered the boiler and hot water storage cylinder and the primary and secondary piping systems for the three buildings, he devotes a chapter to accelerated secondary circulation, and refers back to his examples to design a cold water feed system. The last chapter deals with a small combined hot water supply and space heating system for a bungalow. There is a chapter explaining the differences between direct and indirect systems and an index for reference.

THE PUBLIC HEALTH INSPECTOR'S HANDBOOK. A manual for public health officers, tenth edition. By H. H. Clay. (London: H. K. Lewis & Co. Ltd.). Price £2 15s. net.

A WEALTH OF INFORMATION is contained in this volume the first edition of which, when published in 1933, was presented as a comprehensive guide 'more in accord with the progressive demands of modern times than has been available hitherto.' Mr. Clay in his preface to that first edition said that it was his intention to cover all the duties of the public health inspector. He has continued to achieve this, for in the present edition he ranges from the evolution of public health law to the lettering of canal boats, and from the duties, training and qualification of the inspector to his office organisation and routine.

The general format has not been altered but various chapters have been re-written and all have been revised in order to bring them in line with the large amount of recent legislation and technical advances. No outline or list could be produced here to indicate the extent and volume of information supplied so diverse are the subjects. Despite this however each has its place in the work of the official for whom this book was written. There are twenty-three chapters and 101 illustrations which supply the information and interest which make this volume not only instructive but readable.

NEW GUARDIAN ASSURANCE BUILDING.—*Hansen and Yuncken (SA) Ltd., a member of the Costain group, is constructing this £½m. office building in Adelaide, South Australia, for the Guardian Assurance Co. Ltd. Scheduled for completion in September, 1962, the 13-storey building will be 155 ft. high. The architects are Cheesman, Doley, Brabham and Neighbour, of Adelaide*



Colonial Grants in July

£1m. for West Indies

DEVELOPMENT schemes in the WEST INDIES will benefit by more than £1m. as a result of 12 grants made under the Colonial Development and Welfare Act during July. Altogether, 56 grants and loans were approved during the month making available £5,096,763 for schemes to benefit Britain's oversea territories. They bring the total of Colonial Development and Welfare grants and loans approved since January 1, 1961, to £21,250,575.

Largest of the grants for the West Indies, which totalled £1,053,838, was £562,750 towards the cost of building a new general hospital in Barbados. British Guiana will receive £½m. to construct sea defence works and £90,185 for a drainage and irrigation scheme to provide cattle pasture in swamp lands to the rear of the Black Bush Polder. The University College of The West Indies is to get £105,000 in three grants—£65,000 for an extension to the Taylor Hall of Residence, £20,000 to build two lecture theatres for the Faculty of Natural Sciences and £20,000 to buy library books. The University College Hospital of the West Indies will receive £28,983 to equip and furnish the theatre block.

TANGANYIKA will benefit by £219,875, made up of grants of £121,875 for Native Authority Water Supplies, £57,000 for African urban housing and £41,000 for surveys and investigations in connection with water supplies.

Twelve grants, totalling £167,783, were approved during July for the SOUTHERN CAMEROONS. They included £32,345 for the development of education, £28,900 to improve the Victoria/Bamenda road, £20,179 for agriculture and fisheries and £19,000 for medical and health services.

Other grants include: £184,500 for the Tropical Products Institute; £80,931 for cocoa development in the BRITISH SOLOMON ISLANDS PROTECTORATE; £71,000 for developing estates for African housing in and near urban areas in NYASALAND; £70,934 towards the cost of building the Miri/Bakong Valley road in SARAWAK, and £68,400 for two new Asian primary schools in NAIROBI, KENYA.

New Safety Posters

THE FIRST four new safety posters are being distributed to over 7,000 factories and work places in Great Britain by the British Safety Council. They are a new 'case history' series which illustrate the cause of common accidents, and suggest their simple prevention. The series will cover all aspects of safety in industry, and will assist safety officers dealing with new employees and apprentices.

DSIR Information Division

EFFECTIVE from September 11, the Department's information division will be at State House, High Holborn, London, WC1 (tel.: Chancery 1262). The Council for Scientific and Industrial Research has decided to discontinue the publication of Technical Digests. The September issue will be the last to be circulated, and unexpired portions of subscriptions will be refunded as soon as possible.

OVERSEAS BUILDING

From Our Own Correspondents

ARGENTINA.—The Ministry of Economy and Public Works of the Province of El Chaco has called tenders (No. 45/61) for the construction of an international airport at Resistencia at a budgeted cost of 509m. pesos. The closing date is September 22. Documents are obtainable for 15,000 pesos from the Subscretaria de Obras Publicas, Marcelo T. de Alvear, No. 32, Resistencia, Provincia del Chaco, or from the Casa del Chaco, Callao No. 322 Buenos Aires.

AUSTRALIA (NSW).—The Crane Co. of America has announced plans to commence construction of a factory on a 12 acre site at St. Mary's, Sydney, immediately. A new subsidiary, Crane Australia, which will be formed to produce valves, water meters and pumps at the factory, will be associated with Crane Ltd. of London.

AUSTRALIA (QUEENSLAND).—The Government is to assist Queensland with big rail and road projects to help its development. They will cost £A25m. The Federal Government is to make a grant of £A5m. for the building of cattle yards, and an immediate start is to be made in rebuilding the Mount Isa-Townsville railway. Reconstruction of the line, to cost £A20m. has been made necessary by the increasing output of the Mount Isa mines.

AUSTRALIA (QUEENSLAND). — A £A4m. master plan for the Brisbane Showground has been announced by the Royal National Association. The plan, to be carried out progressively over a number of years, provides for the erection of 2 new stands to increase the seating capacity around the main ring from 20,000 to 100,000, and the construction of a large £1m. pavilion between Lower Gregory-terrace and Water-street. This pavilion, to be 1,000 ft. long, will take in the Hall of Science, 3 existing roadways, 6 existing show buildings, and the dog pavilion.

AUSTRALIA (QUEENSLAND).—Rocla Pipes Pty. Ltd., a Victorian company, is to build as soon as possible a £A¼m. concrete pipe factory on 71 acres of land near the Gailes Railway Station, Brisbane.

AUSTRALIA (SOUTH). — Options have been placed on properties in the Yahl and Glenburnie districts in the south-east of South Australia in preparation for the construction of the new £15m. paper mill.

AUSTRALIA (TASMANIA).—A new hospital at Franklin, to cost £A267,597, was one of four projects recommended to Parliament on August 17 by the Parliamentary Public Works Committee.

AUSTRALIA (VICTORIA).—The Associated Portland Cement Manufacturers' subsidiary, The Victoria Portland Cement Co. Pty. Ltd., is to place a contract with Australasian Civil Engineering Pty. Ltd., of New South Wales, for a £A5m. cement works to produce 300,000 tons a year at Waurn Ponds, near Geelong.

AUSTRALIA (WESTERN).—The standard gauge railway will be extended in Western Australia by 540 miles, to include a rail link from Kalgoorlie to Kwinana and a branch line to iron ore deposits at Koolyanobbing for the steel industry to be established at Kwinana. The project will cost over £A40 million.

AUSTRALIA (WESTERN).—An Australian subsidiary of the US chemical firm of Cyanamid has taken an option on an area of 105 acres for a new factory near Melbourne. The Australian subsidiary will spend several million pounds on the plant, the first section of which will be manufacturing pharmaceuticals before the end of this year. Further activities will be undertaken when the market for the company's products has been surveyed. The site chosen is at Laverton, on the south-western outskirts of Melbourne.

CANADA (ALBERTA).—Plans for the construction of a $6m. hotel have been announced for Calgary.

CANADA (NEWFOUNDLAND). — The McNamara Construction Co. has been awarded a $1.5m. contract to construct two transit sheds at St. John's.

CANADA (ONTARIO).—The International Nickel Co. Ltd. has announced a multi-million dollar construction project at its Copper Cliff plant. . . . A $5.6m. expansion is to be constructed to Toronto's Ryerson Institute of Technology. . . . Du Pont of Canada is to construct an extension to its plant at Whitby. . . . Dominion Structural Steel Ltd. has been named contractor for the steel superstructure for the $7m. Hershey Chocolate plant at Smith Falls. . . . A bottling plant is to be constructed at Ottawa for the Pepsi Cola Co. . . . Perini Ltd. has been awarded a $6.7m. contract to construct the new National Health and Welfare Building at Ottawa.

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DOMINICAN REPUBLIC.—The Department of Public Works and a voluntary housing agency has announced a project for 150 workers' houses to be commenced immediately at La Romana, including repair and improvement of roads in the area, at a total cost of $224,000.

Minister Visits SE Asia

THE MINISTER OF STATE, BOARD OF TRADE, the Rt. Hon. Frederick Erroll, MP, together with Mrs. Erroll, left on September 6 to visit South East Asia. He will be away until October 11. The Minister's main purpose will be to explore the opportunities for increased United Kingdom trade with this area.

Cement Production in Bahamas

BARCLAYS BANK DCO report government approval for the production of Portland cement on a large scale in the Freeport area. The Bahamas Cement Co. will invest up to $50m. and will be granted a monopoly for a period of twelve years. $30m. of the investment is for plant and equipment, $10m. for supplementary raw materials and transportation, etc., and $10m. for comprehensive transport and distribution facilities.

$12½m. Ontario Hospital

A CANADIAN HOSPITAL costing $12½m. has been completed four months ahead of schedule by Anglin-Norcross (Ontario) Ltd., who are associated with Holland & Hannen and Cubitts Ltd. Built for the Ontario Ministry of Health, the 1,200-bed hospital school at Cedar Springs will serve the needs of patients in the south western parts of the province.

FBI Director's Visit to Japan

SIR NORMAN KIPPING, Director-General, and John Whitehorn, Deputy Director (Overseas), of the FBI, are visiting Japan from October 4 to 21. During their stay they will have discussions arranged by the Keidanren—the equivalent in Japan of the FBI—and will visit a number of Japanese factories. They will also visit the British industrial and commercial communities in Tokyo and Osaka.

Ewell Technical College

Special Courses in 1961-62

THE BUILDING DEPARTMENT of Ewell Technical College at Reigate-road, Ewell, Surrey, is running various special courses in addition to the usual curriculum. These include one on work study commencing in the spring of four evening meetings, and two in the summer term on practical surveying and building law (fee 13s. each). There is also a course of four Saturday morning lectures commencing May 26 on concrete mix design and quality control (fee 13s.), and a course of five lectures on soil mechanics (fee 17s. 6d.) to be held after Whitsun. A short course on foremanship for those who have passed HNC will be held in June and a series of six lectures on Tuesday and Thursday evenings will be held in May and June (fee 13s.). Enrolment for general courses commences on September 11 and for classes on September 18.

SCOTTISH BUILDER

School Building Criticised

THE House of Commons Select Committee on Estimates in a report published recently, urges the Scottish Department of Education to review immediately its system of approving school building plans, the number of architects employed, and the location of the architects' department. Criticism of the Department is a recurring theme in the report.

The Scottish procedure for approval, they say, compares unfavourably with the English system, and is producing delay, higher costs and frustration. More architects should be employed and they should be accommodated in the Education Department.

The Department are also asked to review their cost control procedure. In evidence to the committee MR. A. H. LIVINGSTONE, deputy city architect of Glasgow, gave examples of cost reductions, insisted on by the Department, which had been extremely difficult to achieve. He said the Department had demanded savings in the building of three sports pavilions and one school during the previous 15 months. This had involved a complete alteration of plans, alteration of the schedule of the quantity surveyors, and new tenders. By the time all this had been done building costs had increased. Mr. Livingstone said: 'We lost the better part of a year, and we did not achieve a saving at the end of the day. We reduced the accommodation and the finishes, and when we went out for new prices they were dearer.'

Among the more general recommendations in the report, which apply to both England and Scotland, is that teachers should be consulted about the design of new schools, and directives to this effect should be sent to local authorities.

Inverness Development

INVERNESS CORPORATION planning committee met on August 30 to discuss proposals for the development of the north side of Bridge-street, prepared by the Falkirk Development Co. Ltd., in association with the E. Alec Colman group of companies. It is the second major scheme for the development of Bridge-street, regarded as one of the most valuable sites in the county, to come before the council this year.

Plans by the Murrayfield Real Estate Company, Ltd., for the development of the south side of Bridge-street, immediately below Inverness Castle, were approved by the council at a recent meeting after a number of schemes and models as well as offers for the site had been submitted by several developers at the council's invitation. The scheme proposed for the north side of Bridge-street covers a much greater area, extending southwards from the Caledonian Hotel and taking in part of Bank-street, Church-street, and Bank-lane.

Housing in July

NEW HOUSES completed in Scotland in July totalled 1,777. This brings completions so far this year to 15,912—a decrease of 299 compared with last year. The monthly Housing Summary of the Department of Health for Scotland and the Ministry of Housing and Local Government, now published, is obtainable from HMSO, price 1s. 3d.

Of the 425,547 houses built in Scotland since the war, 381,134 have been built by public authorities and 44,413 by private builders.

Tunnel Contracts Placed

TWO CONTRACTS valued at £346,000 for work on the road tunnel being driven under the River Clyde between Whiteinch and Linthouse have been approved by Glasgow Corporation. The first contract, of £211,914, for the supply and installation of electrical plant, is to be placed with James Scott and Co. (Electrical Engineers) Ltd., Glasgow, and the other, of £133,856, for the construction of ventilation buildings with Crowley Russell and Co., Ltd., Glasgow.

New Buildings

EDINBURGH.—Redevelopment of the Leith Fort area with a 7-storey block of 157 houses and 48 courtyard houses as phase I. Applications to City Architect, Edinburgh, by Sept. 11.

EDINBURGH.—The Corporation's Transport Dept. is to build a major bus depot at Marine Gardens on an all-trades-in-one basis. Applications to the Transport Manager, Queen-st., Edinburgh.

EDINBURGH.—Dean of Guild Court approval has been given to a £50,000 extension by T. & H. Smith Ltd. A fine-chemicals building is to be built beside the existing factory at Wheatfield-rd., Gorgie. . . . The Court also granted a warrant to the Scottish Gas Board to build a refining plant at West Granton-rd., at a cost of £31,000.

FIFE.—Littlewoods Stores Ltd. are to build a new supermarket at High-st., Kirkcaldy, Fife.

GLASGOW.—The Corporation has established a central industrial office to encourage industrial settlement in the city, and plans four big industrial estates at Eastwood (10 acres); Balmore (60 acres); Barmulloch (26 acres); and South Nitshill (19 acres).

GLASGOW.—The Corporation's Transport Committee plan an extension to the various bus works in the city, and invite tenders. Applications to TC, City-chmbrs., Glasgow.

GIRVAN.—TC are to build a new sewage screening plant to supplement the town system.

GLENROTHES.—Extensions of 35,000 sq. ft. are to be made to Messrs. Anderson Boyes & Co. Ltd's. factory at the new town of Glenrothes. Their present offices and factory cover an area of 65,000 sq. ft. and was opened over two years ago. Work on the extension is to begin immediately and it is hoped it will be completed in six months.

KENNOWAY (Fife).—A sports stadium is to be erected at Kennoway, Fife, where a new housing development was commenced by the CC after the war. Today it has a population of 5,000.

It was thought that the stadium, costing £35,000, would be delayed by the present financial difficulties. The Council have been informed that the Scottish Education Department have given their sanction for the first phase of the project, costing about £10,000, to be commenced. It is hoped to ask for tenders in the near future.

PERTH.—TC has granted planning permission to General Accident, Fire and Life Assurance Corporation Ltd., for the first phase of a £500,000 office extension at Tayside, Isla-rd.

THE BUILDER CONSTRUCTION NEWS

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list, see previous issues. Those preceded by the symbol (A) are advertised in this number. The latest date for the receipt of tenders or applications appears above each paragraph. The symbol (R) preceding each entry indicates that applications must be received by this date.

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BUILDING

SEPTEMBER 9

(AR) CALNE & CHIPPENHAM RDC.—Redevelopment of Rudloe Camp. Edwards & Webster, Ccl's. architects, 10 St. Mary-st., Chippenham, Wilts.

SEPTEMBER 11

(AR) GUILDFORD RDC.—Erection of nine flats, etc., at Shawfield-rd., Ash. E&S. Dep. £2 2s. Tenders by Oct. 11.

(AR) SOUTHEND-ON-SEA CBC.—Proposed new jun. sch. at Rayleigh-rd. and Snakes-la., Eastwood. Boro' A. Dep. £2.

(AR) WATFORD BC. — Conversion and modernisation of No. 13 Essex-rd. Dawe, Carter & Ptnrs., architects, 33 Clarendon-rd., Watford.

SEPTEMBER 13

(AR) LEEDS REGIONAL HOSPITAL BOARD.—Fixed price tenders for a new ward block, covered ways and alterations and extensions to existing buildings at Bempton Lane Hospital, Bridlington. A to Bd. Dep. £2 2s. Tenders by Oct. 16.

SEPTEMBER 14

(AR) HASTINGS CBC.—Erection of new grammar sch. for 570 pupils. Boro' S. Dep. £5 5s. Tenders by Oct. 26.

SEPTEMBER 15

(AR) DUDLEY CBC.—Erection of 272 dwellings at Russells Hall estate. Boro' A. Dep. £2 2s.

(AR) HORNSEY BC.—Erection of public mortuary at Myddelton-rd., N8. Boro' E&S. Tenders by Oct. 16.

(AR) OXFORD CITY C.—Fixed price tenders for the erection of ten houses at Headley Way. City A & Planning Officer.

SEPTEMBER 18

(AR) CHORLEYWOOD UDC.—Fixed price tenders for the erection of old people's bungalows, 12 maisonettes and 12 garages, etc., at Bullsland-la., The Swillett. E&S. Dep. £2 2s. Tenders by Oct. 9.

(AR) GLOUCESTERSHIRE CC. — Fixed price tenders for a new prim. sch. at Shurdington. County A. Dep. £2 2s.

(AR) WESTON-SUPER-MARE BC.—Erection of 88 dwellings and 35 garages, etc., at Oldmixon town development site. TC.

SEPTEMBER 21

(AR) GLOUCESTERSHIRE CC.—(a) Extension to Almondsbury CoE sch.; (b) extensions to Oldham Common sec. boys' sch. County A. Dep. £3 3s. (each contract).

SEPTEMBER 22

(A) BRAINTREE & BOCKING UDC.—Fixed price tenders for two houses with site works, etc. S. Dep. £2 2s.

(A) EALING BC.—Construction of covered way, lavatories and printing room at rear of Town Hall, Uxbridge-rd. Boro' E. Dep. £2.

SEPTEMBER 27

(A) HESTON & ISLEWORTH BC.—Erection of 36 flats, 32 houses and 68 garages at Whitton Dene/Hall-rd. development. Boro' S. Dep. £2 2s.

(A) MANCHESTER CITY C.—Erection of a sweet shop and ambulance room at Heaton Hall, Heaton Park. City A.

(AR) WOLVERHAMPTON CBC.—Erection of a training centre for spastics, retarded children and adults at Probert-rd., Oxley. Boro' E. Dep. £2 2s.

SEPTEMBER 29

(A) SCARBOROUGH CBC.—Extensions to Town Hall. Boro' E. Dep. £3 3s.

SEPTEMBER 30

(AR) MAIDENHEAD BC.— Firm price tenders for a public convenience at Ray Mead-rd. Boro' E&S. Dep. £2 2s.

OCTOBER 2

(A) DEAL BC.—New sports pavilion. D. H. Seabrooke, architect, 24 Tufton-st., Ashford, Kent.

OCTOBER 5

(A) HEMEL HEMPSTEAD BC.—Erection of 20 dwellings, 10 shops and 22 garages at Highfield. Boro' E.

OCTOBER 9

(A) MIDDLESBROUGH CBC.— Erection of 126 dwellings and 43 garages at Easterside. Boro' E. Dep. £2 2s.

SERVICES, PAINTING, MATERIALS, ETC.

SEPTEMBER 19

SLOUGH BC.—Fixed price tenders for the supply and fixing of electrical installation to Council's proposed crematorium at Stoke-pl. Boro' E. Tenders by Oct. 13.

SEPTEMBER 27

(A) LETCHWORTH UDC.—Firm price tenders for additional changing rooms at new swimming pool in Icknield Way. E&S. Dep. £2 2s.

MUNICIPAL AND CIVIL ENGINEERING WORKS, ETC.

SEPTEMBER 18

BAILDON UDC.—Surfacing of approx. 5,700 sq. yds. of carriageway at Knoll estate. S.

SEPTEMBER 29

ELLESMERE RDC. — Construction of approx. 22 miles of asbestos-cement water mains, 2 to 8 in. in dia. A. H. S. Waters & Ptnrs., engrs., 25 Temple Row, Birmingham 2. Dep. £5 5s.

OCTOBER 2

SOUTHAM RDC.—Fixed price tenders for sewerage and sewage treatment works at Fenny Compton. Richards & Dumbleton, engrs., Cormwall-bldgs., 45 Newhall-st., Birmingham 3. Dep. £3.

OCTOBER 6

(A) BOURNEMOUTH CBC.—Fixed price tenders for a new asphalt area at Stourfield jun. sch., Cranleigh-rd. Boro' A. Dep. £1 1s.

Contracts Placed

We are glad to receive from architects and quantity surveyors for publication details of contracts placed to the value of £20,000 or over. Such information should reach the Editor as soon as possible after the contract is signed. Names of the architect and other consultants associated should be given.

GENERAL BUILDING WORK (LONDON)

BATTERSEA. — Planning Application. — The MBC has forwarded a town planning application to the LCC for the erection of two 10-storey blocks of flats, houses, library, hall and wash house, at 'Southlands,' Battersea High-st./Shuttleworth-rd./Winders-rd.

CHELSEA. — Planning Application. — Campbell-Jones & Sons have forwarded a town planning application to the LCC for the erection of shops and flats at rear of King's-rd.

HAMMERSMITH. — Planning Application.—The LCC has received from the BBC a town planning application for the construction of car-parking facilities and technical accommodation for the BBC TV, at junction of Wood-la./Shinfield-st.

HAMPSTEAD.—Planning Application.—Devereux & Davies, architects, have forwarded a town planning application to the LCC for shops and flats at College-cres.

HOLBORN.—Planning Applications.—The following town planning applications have been received by the LCC: Redevelopment to provide storage, offices, hotel and PH, at High Holborn/Short's-gdns./Drury-la. (R. Ward & Ptnrs.); new building for extensions of Birkbeck College, University of London, Malet-st. (Adams, Holden & Pearson); new building for offices, showrooms and light industry at Newton-st./Parker-st. (J. Crabtree).

LONDON (City).—Planning Application.—Farquharson & McMorran, architects, have forwarded a town planning application to the LCC for a new divisional police station at Wood-st./Love-la. for the City Corpn.

ST. PANCRAS.—Planning Application.—The BTC are to reconstruct Euston Station if planning permission is received from the LCC.

SHOREDITCH.—Planning Application. — MBC has forwarded a town planning application to the LCC for a 5- and 8-storey block, with shops, at Napier-gr. area.

SOUTHWARK.—Planning Application.—Extensions to the eastern end of Bankside Generating Station are proposed by the CEGB, who has asked the LCC for planning permission for the project.

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(PROVINCIAL)

ANDOVER. — Extensions to Eastfield Home for the Blind are proposed by Hants. CC. Est. is £21,500. . . . PC Council propose a new church. Architects: Pinckney & Gott, London, W1.

ANGLESEY.—The Budenberg Gauge Co., Altrincham, Ches., proprose the erection of new factory at Amlwch.

ASCOT.—The Royal Enclosure Stand at Ascot Racecourse is to be rebuilt. Work will commence in 1963.

AYLESBURY.—A loan of £234,920 is being sought by Bucks. CC for the erection of Weedon-rd. jun. sch.

BASINGSTOKE.—Hants. CC propose extensions of phase II at Queen Mary's boys' sch.

BISHOP AUCKLAND.—G. McCall Ltd., bldrs., New Herrington, Co. Durham, are seeking permission to erect 24 houses at Church-st., Coundon.

BLACKBURN.—A new youth centre is to be built at Newton-st. by St. Thomas's Youth Club.

BLYTH.—A contract will be let at an early date for the erection of an office block for the shipbreaking firm of Hughes Bolckow & Co. Ltd., Battleship Wharf, Blyth. Architects are Cotton, Ballard & Blow, 48 Pilgrim-st., Newcastle-on-Tyne.

BOLTON.—Following for BC: Public abattoir at St. Mark's-st./Lever-st.; housing development, to consist of 78 dwellings, at Green Way; 325 dwellings at Haslam Park; 129 dwellings at School Hill; 120 dwellings at Edge Lane; 400 dwellings at Breighmet neighbourhood unit.

BURNLEY.—BC propose erection of new bus station and staff accommodation, luggage office, snack bar and public conveniences at Pickup Croft. £128,000 est.

CAMBERLEY.—Work is to start shortly on the erection of a new training sch. for women Army officers on a site at Portsmouth-rd. for the War Dept. Est. cost £627,000. . . . Seven hundred houses are to be erected at Burrow Hill Farm, Field-la., Frimley, by H. Boot & Sons (Southern) Ltd. Inquiry held.

CARLISLE.—Adamson & Co., are seeking a site at Willowholme industrial estate for the erection of a new factory.

CHEADLE & GATLEY.—A welfare clinic, branch library and public hall are to be erected at Heald Green by the UDC.

CHESTERFIELD.—BC propose erection of 27 flats and a group of garages at Littlemore. . . . J. S. Wilcockson Ltd. propose erection of office block and showrooms at Boythorpe-rd.

CHRISTCHURCH.—Tuckton Golf Course Ltd. plan an open-air swimming-pool on own land in Stour-rd.

DARLINGTON.—Plans are being prepared for proposed factory additions on Aycliffe trading estate for the Industrial Estates Management Corporation, Team Valley, Gateshead. Architects are Cordingley & McIntyre, Owengate, Durham City.

DEWSBURY.—Following for BC: Aged persons' bungalows at Staincliffe-rd.; new

sec. sch. at Thornhill. . . . W. Rowbottom & Sons Ltd. propose extensions to warehouse, Stoney Bank-st. . . . Haywood & Peirson Ltd. propose erection of 20 sd houses at Chidswell-la.

DUKINFIELD.—British Transport Commission propose erection of new office accommodation at Wharf-st.

DURHAM.—The County Architect (G. W. Gelson) has prepared plans for erection of maisonettes, office and garage for the police authority at Hartlepool. Tenders are being obtained.

ECCLES.—New bank premises are proposed at Monton-rd. for Westminster Bank Ltd. . . . Five blocks of 3-storey flats are proposed by the BC for Philip-st., Patricroft.

FAREHAM.—A new fire station is to be built at Whickham for Hants. CC. This Authority will also prepare quantities for phase one of Park county infants' sch.

FARNBOROUGH.—Hants. CC are preparing working drawings for Grange county junior sch.

FLINT.—BC propose erection of civic centre and guild hall at Church-st.

HANTS.—CC propose extensions to Oak Park boys and Oak Park girls' schools, Havant, and the erection of youth wing at Hurst county sec. sch., Baughurst.

HAMBLEDON.—A £109,000 loan for the purchase of Wanborough-la. housing site is being sought by the RDC.

HINDLEY.—Following for UDC: A site for a hotel is being considered at Castle Hill housing site; 138 dwellings at Hollins farm housing site (est. £239,488); the purchase of 26 acres of land at Sandy-la. for residential development.

HYDE.—BC propose erection of 24 dwellings at Grange-rd. . . . John Whittle (Footwear) Ltd. propose erection of warehouse at Wood-st.

JARROW (Co. Durham).—TC is planning further housing developments in the Boldon overspill area. Plans include 207 houses, 19 bungalows and 72 flats. No contracts let. Boro' E is H. W. T. Perkins.

LEEDS.—Following for TC: Old people's hostel at Whinmoor; 36 maisonettes, 14 houses and 25 garages at Theaker-la.; three 12-storey blocks of flats, 16 bungalows, 232 maisonettes and 196 houses at Whinmoor; twelve-storey block of flats, 16 maisonettes, 14 houses and 55 garages at Beckett Park; new fire station at Middleton-cres.

LIMAVADY (Co. Londonderry).—Ministry of Health has approved, in principle, the proposed River Roe regional water scheme for RDC. Est. £432,000.

LIVERPOOL.—Woolton Motors Ltd. propose a petrol filling station and garage extensions at Menlove-ave. . . . Following for TC: Erection of three 14-storey blocks of flats and five 11-storey blocks of flats at William Henry-st.; residential development at Anglezark-st.; multi-storey flats at Palatine-st.

MACCLESFIELD.—A new factory is to be built by Locomotors Ltd., of Manchester and Macclesfield, on land near Brook-st.,

MANCHESTER.—Wilson's Brewery Ltd. propose erection of transport offices at Newton Heath Brewery, Monsall-rd., Newton Heath. . . . Queens Hotel (Manchester) Ltd. propose showrooms, offices and bank premises at Queens Hotel, Portland-st. . . . Cooper's Ltd., Liverpool, propose conversion of shop into supermarket at Wilbraham-rd Chorlton-cum-Hardy. . . . F. Entwistle & Co. (Builders) Ltd., Cheadle Hulme, Ches., propose erection of two 11-storey blocks of flats at Pink Bank-la., Longsight. . . . A. Quilligotti & Co. Ltd. propose erection of petrol service station at Plymouth-gr./Milton-st., Chorlton-on-Medlock. . . . Nuthurst Properties Ltd. propose residential development at Nuthurst-rd., Moston.

MILLOM.—The North Lancashire & South Cumberland Development Co. Ltd. propose erection of 80 dwellings at Dumb-la.

MORLEY.—H. Waterhouse & Sons propose erection of 42 dwellings at Main-st., East Ardsley.

MORPETH.—RDC proposes 15 houses at Longhorsley, and plans are also to be considered for the erection of houses on a hotel site at Widdrington. Surveyor is J. R. Miles.

NELSON.—In 1962/3, Lancs. CC are to build a 10-bay ambulance station, at an estimated cost of £22,850.

NEWCASTLE-ON-TYNE.—Tenders are being obtained by the City Council for the erection of a branch library at Jesmond. Architect is H. F. Brown, 13 Archbold-terr., Jesmond, Newcastle-on-Tyne.

NOTTINGHAM.—Following for TC: New branch library at Dunkirk; multi-storey car park at Trinity-sq., (£109,000 est.).

ORMSKIRK.—UDC propose new police station and garages at Burscough-st.

OXFORD.—Silks Estate Development Ltd., Cowley-rd., Oxford, propose 18 aged persons' flats, 16 flats and 62 garages at Temple-rd. and Salegate-la. . . . New buildings are proposed by BMC at Watlington-rd. Architects: H. W. Weedon & Ptnrs., Edgbaston, Birmingham. . . . The Senate of Oxford University propose stage one of a new science precinct at Keble-rd. triangle. Consultants are Ove Arup & Ptnrs., London, W1. Est. £1m.

OXON.—EC is to negotiate a tender with Vic Hallam Ltd., Langley Mill, Notts., for extensions at Woodcote pri. sch.

READING.—Calderhead & Scobie, 7 Friars Stile, Richmond, have been appointed architects by Oxford Regional Hospital Bd. for an experimental x-ray unit at Battle Hospital. . . . Senate of Oxford University propose a new hall of residence at Whiteknights Park. Plans by Stanley Meyrick, of Welwyn Garden City. . . . Extensions to the Technical College are proposed by the EC. . . . McManus & Co. Ltd. propose 21 flats off New Lane Hill.

RISHTON.—Land is being reserved at Harwood-rd. by the UDC for future residential development.

ROTHERHAM.—BC propose erection of shops with maisonettes over, at Broom Valley estate.

ROYTON.—24 semi-detached bungalows with a garage block are planned at Cemetery-rd./Oozewood-rd., by private enterprise.

STOKE-ON-TRENT.—The Methodist Church Trustees propose erection of new Church, Sunday School and Church hall off Magdalen-rd.

SUNDERLAND.—TC to consider the proposed site at Mowbray Park for a civic centre. Boro' A is H. C. Bishop. . . . Two new youth centres, each costing £40,000, are to be built by the EC. The first in 1962/3 and the other in '64.

TODMORDEN.—BC propose residential development at Harley Wood/Longfield/Salford.

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TYNEMOUTH.—A contract is expected to be decided later this year for the erection of an office block for Messrs. Smith's Dock Co. Ltd., shiprepairers, North Shields. The cost will be about £30,000, and the architects are W. B. Edwards & Partners, Cathedral-bldgs., Dean-st., Newcastle-on-Tyne.

TYRONE.—Co. EC is to erect a sec. intermediate sch. at Newtownstewart.

WEST BROMWICH.—The Church Council of St. Paul's propose erection of dual purpose church hall at Tanhouse estate.

WEST RIDING.—CC propose major improvement scheme at Upper Whitley pri. sch. Est. £22,000.

WHICKHAM (Co. Durham).—J. H. James & Son, builders and contractors, Archer-st., Wallsend, propose 46 houses at Dunston-rd Dunston, to plans by W. Stockdale, 73 Howard-st., North Shields.

WICKLOW (Eire).—A state company is to be formed to construct a nitrogenous fertiliser factory at Arklow. Est. £7m.

WIGAN.—J. Gaffney & Son (Wigan) Ltd. propose residential development east of Warrington-rd.

WINCHESTER.—Ronald Lyon (Estates) Ltd., Walton-on-Thames, propose a new industrial site at old gasworks, Winnall. . . . Hants & IoW Police Auth. propose new 8-storey police headquarters on site of existing building.

YORK.—Ravenseft Properties Ltd., London, propose erection of shops at Coney-st.

TENDERS

(A) Denotes *accepted*.
(PA) Denotes *provisionally accepted*.
(RA) Denotes *recommended for acceptance*.
(AM) Denotes *accepted subject to modification*.
(GD) Denotes *accepted subject to approval by appropriate Government Department*.

ASHTON-UNDER-LYNE — New bus station at Katherine-st. for BC. (A) James Miller & Partners Ltd., Wakefield, £85,597.

BRISTOL.—New warehousing facilities at Whitchurch for John Harvey & Sons. Architects: Peter Falconer & Ptnrs., Gloucs. (A) Sir Rbt. McAlpine & Sons, £300,000.

BRISTOL.—Erection of St. Bedes RC sch. at Lawrence Weston for Clifton Catholic Diocesan Trustees. (A) Robert Watson Ltd., Filton, Bristol.

CONNAH'S QUAY.—Erection of second phase of civic centre scheme, comprising new council offices for UDC. E&S is E. Simpkin. (A) G. R. Brimblecombe (Buckley) Ltd., £90,000.

ESTON.—Erection of a RC Church at Teesville Eston, nr. Middlesbrough. (A) T. G. Construction Co. Ltd., Wolverhampton. £65,000.

LANCS.—Construction of dual carriageway, about one mile long, for the Birmingham-Preston Motorway(M6) for CC and MoT. (A) Sir Alfred McAlpine & Sons Ltd. and L. Fairclough Ltd., £439,355.

LINDSEY.—Constructional work on bypass at Laceby, on the Sheffield-Grimsby road, for CC. (A) Clugston Civil Engineering Ltd., £357,302.

(GD) LONDON (Admiralty).—Particulars of contracts over £4,000 in value: *Northern Ireland:* Foundations for door tracks; R. J. Campbell (Belfast) Ltd., Belfast. *Devonshire:* Conversion of tithe barn to chapel; A. N. Coles (Contractors) Ltd., Plymouth. Internal painting; Dudley Coles Ltd., Plymouth. Demolition of old buildings; R. Westlake & Sons (Devonport) Ltd., Devonport. *Cornwall:* Resurfacing of runway; W. & J. Glossop Ltd., Exeter. Improvements to living accommodation; Noye Bros., Helston. *Hampshire:* Living accommodation; John Hunt Ltd., Gosport. *Fife:* New laboratory, office block and extension to workshop; J. R. & A. Adam Ltd., Lochgelly.

(GD) LONDON (Air Ministry).—Contracts to the value of £4,000 or over for week ended September 1: *Building work:* Benson, Oxfordshire; F. R. Hipperson & Son Ltd., Dagenham, Essex. London (Heathrow) Airport, Hounslow, Middlesex; Stanley Hugh Leach Ltd., Hayes, Middlesex. Stafford, Staffs.; Seddon (Stoke) Ltd., Stoke-on-Trent, Staffs. Croughton, Brackley, Northants.; Robert Marriott Ltd., Rushden, Northants. *Civil engineering work:* London (Heathrow)

Airport, Hounslow, Middlesex; J. Murphy & Sons Ltd., Finsbury Park, London, N4.

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(GD) LONDON (MoW).—Contracts placed for week ended August 26: *Aberdeenshire:* Erection of radio station at Old Meldrum; D. C. Stewart, Bridge of Don, Aberdeen. *Buckinghamshire:* Construction of workshop at rocket propulsion establishment, Westcott; Jessee Meade Ltd., 176 Berkhampstead-rd., Chesham, Bucks. *Essex:* Improvements to Quinton Gate at explosive research development estab., Waltham Abbey; Yates (Bow) Ltd., Fairford-rd., Bow, E3. *London:* Internal decorations at State House, High Holborn, WC1; South London Decorators Ltd., Wandle Way, Willow-la., Mitcham, Surrey. Internal decoration work at Baynards-hse., 1-13 Chepstow-pl., W2; C. & T. Painters Ltd., Mordaunt-rd., Harlesden, NW10. Alterations and extensions to Government Office, 10 Spanish-rd., Wandsworth; Stanley Hugh Leach Ltd., 231-231a Yeading-la., Hayes, Middlesex. Alterations and redecorations to Lambeth County Court, SE; John Greenwood Ltd., King William Street House, Arthur-st., EC4. *Ross and Cromarty:* Erection of radio station at Rosemarkie; D. Logan (Builders) Ltd., Great North-rd., Muir-of-Ord, Ross-shire. *Suffolk:* External wall treatment at Ministry of Agriculture, Fisheries and Food, Grand Hotel, Lowestoft; Pyrok Contracts Ltd., Pool-la., Langley, Birmingham.

LUTON.—New community centre and church for the deaf and dumb at Old Bedford-rd., for the St. Albans Diocesan Association. (A) H. C. Janes Ltd., High Town-rd., Luton,

MACCLESFIELD.—New factory at Hurdsfield industrial estate for Johnson's of Hendon. (A) Chamberlain Group of Companies.

NEWCASTLE-ON-TYNE. — Erection of workshops and offices at George-st. for Black and Decker Ltd. Architects: M. & H. Gatoff, 26 Mosley-st., Newcastle-on-Tyne. (A) Messrs. Constables, 196 Westgate-rd., Newcastle-on-Tyne.

OXFORD.—Erection of 21 houses at Cornwallis-rd. for City C. City A is D. Murray. QS: H. J. Ridge & Ptnrs. (A) A. C. Carter (Oxford) Ltd., £55,273 (firm price tender).

OXFORD.—Extensions to St. Luke and St. Crispin wards, Kettering General Hospital, for Regional Hospital Bd. (*a*) A. J. G. Potter & Son, Stanwick, £30,550.

SCUNTHORPE.—Erection of 216 houses and 190 garages, etc., at Westcliffe housing estate for CBC. (A) G. Wimpey & Co. Ltd., £582,287 (negotiated tender).

SHEFFIELD.—Erection of 296 flats at Newfield Green, Gleadless Valley estate for the CBC. (A) M. J. Gleeson (Contractors) Ltd., £794,784. New boilerhouse, etc., at Hyde Park scheme, Park Hill, for CBC. (A) G. N. Haden & Sons Ltd., Manchester, £40,206.

SOUTH SHIELDS.—Erection of three-storey shopping premises at Ocean-rd. for London and Northern Properties Ltd., Benton-terr., Sandyford-rd., Newcastle-on-Tyne. Architects: Marshall & Tweedy, 36 Blackett-st., Newcastle-on-Tyne. (A) Middlemiss Bros., Stepney Bank, Newcastle-on-Tyne.

STANLEY (Co. Durham).—Erection of shops and offices, Front-st. for London and Northern Properties Ltd., Benton-terr., Sandyford-rd., Newcastle-on-Tyne. Architects: Marshall & Tweedy, 36 Blackett-st., Newcastle. (A) Middlemiss Bros., Stepney Bank, Newcastle-on-Tyne.

STOKE-ON-TRENT.—Following for TC: Erection of 113 dwellings at Longton Hall-rd. (A) Direct labour, £179,982. Erection of 93 dwellings at Holden-la. estate. (A) Direct labour, £150,506.

SUNDERLAND.—Erection of pre-packed coal distribution centre between Deptford-terr. and Radnor-st. for J. D. Johnson & Co. Ltd., coal merchants, 24 Foyle-st., Sunderland. (A) Atcost Ltd., 66 Duke-st., Darlington.

SUNDERLAND.—Construction of dwarf walls and gates for 642 houses on the Thorney Close estate for TC. (A) Corporation Public Works Dept., £37,506.

TODMORDEN.—Erection of 3 blocks of flats at Scott-st., Walsden, for BC. (A) G. Wimpey & Co. Ltd.

ULVERSTON.—Erection of 18 dwellings and 11 garages with road works at Croftlands for UDC. (A) Baker & Foster (1960) Ltd., £35,087.

WINCHESTER.—Erection of four eight-storey blocks of flats and 67 garages at Winnall Manor estate for TC. (A) Wates Ltd., London, £395,848.

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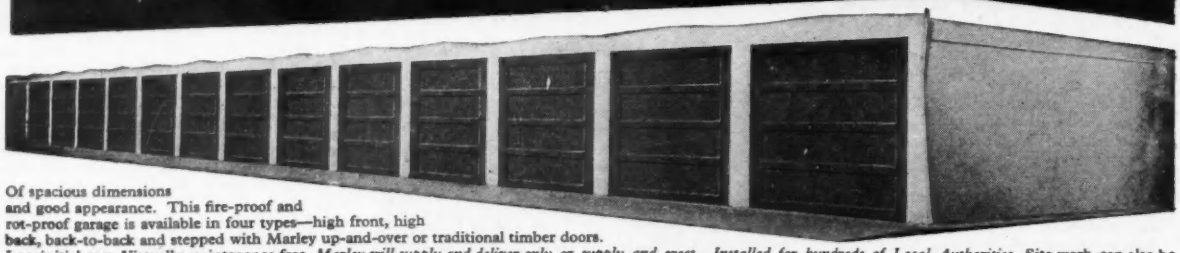

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